Canada's Nuclear Regulator

Glossary of CNSC Terminology

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Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

Canada

Glossary of CNSC Terminology
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Preface

This regulatory document is part of the CNSC's series of regulatory documents. The full list of regulatory document series is included at the end of this document and can also be found on the CNSC's website.

Regulatory document REGDOC-3.6, *Glossary of CNSC Terminology*, provides a list of terms and definitions used in the *Nuclear Safety and Control Act* (NSCA), the regulations made under the NSCA, and CNSC regulatory documents and other publications, such as annual reports and guidance documents. This document is provided for reference and information and serves as the standard for future CNSC regulatory documents and other publications.

REGDOC-3.6 is an evergreen document. This update (August 2018) replaces the version published in December 2016.

All terms and definitions from the NSCA (also called the Act) and regulations made under it are identified by source. Certain frequently used terms and definitions defined by other acts of Parliament are also included and their sources are also identified. References to sections, subsections, paragraphs, schedules or columns mean those belonging to the source (NSCA, regulation or other act) unless otherwise specified.

Some terms are also used in CNSC licences and licence conditions handbooks. This glossary may include minor edits of those terms and definitions; however, the definitions in this glossary do not supersede licence conditions or other legally binding documents.

In most cases, the definitions have been previously published in CNSC documents. Where necessary, they have been edited for grammar, consistency and accuracy. Where published sources provided multiple definitions for a term, similar definitions were combined and edited for the same reason, or context was added where the meaning applies to a specific safety area or facility type.

This document is intended to be updated regularly. New terms and definitions will be added as new or revised regulatory documents or other publications are published. Comments on terms and definitions are always welcome; please contact the CNSC if you have any suggestions to improve this document's completeness, cohesiveness or clarity.

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Glossary of CNSC terminology

1. Introduction

1.1 Purpose

This glossary is provided for reference and information and serves as the standard for future CNSC regulatory documents and other publications.

The definitions in this glossary do not supersede licence conditions or other legally binding documents.

1.2 Scope

The glossary provides a list of terms and definitions used in the *Nuclear Safety and Control Act* (NSCA; also called the Act), the regulations made under the NSCA, and CNSC regulatory documents and other publications, such as annual reports and guidance documents. Acronyms and abbreviations are also included.

Minor edits have been made to some terms and definitions from published CNSC regulatory documents and other CNSC publications. Notes have been added to certain definitions to further clarify them.

French terms

For each term, the French term is provided immediately following the English term.

Glossary structure

Most glossary entries consist of a term plus a definition, but may also have other information.

A term may have one or more definitions; for example:

> **safety analysis** *(analyse de la sûreté)*
> A systematic evaluation of the potential hazards that is associated with the conduct of a proposed activity or facility and that considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.
> OR
> With respect to deterministic safety analysis, analysis by means of appropriate analytical tools that confirms the design basis for the items important to safety and ensures that the overall nuclear facility design is capable of meeting specified acceptance criteria.

Cross-references are provided to the main or preferred term; for example:

> **poison** *(poison)*
> See neutron absorber.

Acronyms are included – either with the defined term, or as a cross-reference or a standalone entry where applicable; for example:

> **annual limit on intake (ALI)** *(limite annuelle d'incorporation [LAI])*
> The activity, in becquerel, of a radionuclide that will deliver an effective dose of 20 mSv during the 50-year period after the radionuclide is taken into the body of a person 18 years old or older or during the period beginning at intake and ending at age 70 after it is taken into the body of a person less than 18 years old. (Source: *Radiation Protection Regulations*)
>
> **ALI** *(LAI)*
> See annual limit on intake.
>
> **RCS** *(SRR)*
> reactor coolant system

The glossary also lists alternate, but less frequently used terms, as well as a small number of terms (not necessarily synonyms) that are more suitably defined under other ones. These alternate terms are also cross-referenced to the appropriate terms, for example:

> **collimator** *(collimateur)*
> See beam limiter.

1.3 Relevant legislation

Sources

Terms and definitions from the NSCA, regulations made under the NSCA and other relevant legislation are identified by the source; for example:

> **Class I nuclear facility** *(installation nucléaire de catégorie I)*
> A Class IA nuclear facility and a Class IB nuclear facility. (Source: *Class I Nuclear Facilities Regulations*)

Each term is generally from the Interpretations section, but may appear in another section or subsection of the legislation. Within any definition, references to sections, subsections, paragraphs, schedules or columns mean those belonging to the source unless otherwise specified.

IAEA Regulations

Throughout this document, the term "IAEA Regulations" refers to the most up-to-date *Regulations for the Safe Transport of Radioactive Material*, published by the International Atomic Energy Agency (IAEA).

1.4 Additions and revisions

This update (August 2018) replaces the version published in December 2016.

Future updates to this document will incorporate new terms and definitions in newly published regulatory documents, capture revisions to existing CNSC documents as those documents are developed or reaffirmed, and reflect advances in scientific and technical knowledge.

Suggestions for additions and revisions to the terms and definitions included in this document should be submitted to the CNSC.

2. Terms and Definitions

A

A_1, A_2 *(A_1, A_2)*
Ha[ve] the same meanings as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: A_1 and A_2 are values specific to each radionuclide and are used to determine the activity limits for transport packages.

abandon *(abandonner)*
Remove from regulatory control.

abiotic *(abiotique)*
Relating to the non-living parts of the environment such as air, rock, soil and water. Some abiotic components are topography, hydrology, drainage, climate, meteorology, and land-use patterns by members of the public.

abnormal incident *(incident anormal)*
An abnormal occurrence that may have a significant cause and/or may lead to more serious consequences.

Aboriginal peoples of Canada *(peuples autochtones du Canada)*
Includes the Indian, Inuit and Métis peoples of Canada. (Source: *Constitution Act, 1982*)
See also Indigenous peoples.
Note: Outside of legal contexts, the term First Nations is used in place of the term Indian.

absent from duty *(absent de son poste)*
Not available on a day normally scheduled for duty.

absorbed dose (D) *(dose absorbée [D])*
The quotient, in gray, obtained by dividing the energy absorbed through exposure to radiation by the mass of the body or part of the body that absorbs the radiation. (Source: *Radiation Protection Regulations*)
See also effective dose, equivalent dose.

acceptance criteria *(critères d'acceptation)*
With respect to nuclear facilities, specified bounds on the value of a functional or condition indicator used to assess the ability of a structure, system or component to meet its design and safety requirements.

access denial *(refus d'accès)*
A denial of access to an adversary, through the exercise of sufficient force, to a vital area of a nuclear facility until an offsite response force intervenes effectively.

accident *(accident)*
Any unintended event, including operating errors, equipment failures or other mishaps, the consequences or potential consequences of which are significant from the point of view of protection or safety. With respect to nuclear criticality safety, the term **accidents or accident sequences** means events or event sequences, including external events, that lead to violation of the subcriticality margin (that is, to exceeding the upper subcritical limit).

accident conditions *(conditions d'accident)*
Deviations from normal operation more severe than anticipated operational occurrences. Accident conditions include design-basis accidents and beyond-design-basis accidents.

accident management *(gestion des accidents)*
The taking of a set of actions during the evolution of an accident to prevent the escalation of the accident, to mitigate the consequences of the accident, and to achieve a long-term safe stable state after the accident.

accidents or accident sequences *(accidents ou séquences d'accident)*
See accident.

account audit *(vérification comptable)*
An examination by IAEA or CNSC inspectors of the nuclear material accounts, records and reports at a facility to check for completeness, correctness, internal consistency and consistency with the Member State reports.

accounting *(comptabilisation)*
A system of records and reports that shows, for each material balance area (MBA), the inventory of nuclear material and the changes in that inventory, including receipts into and transfers out of the MBA.

accounting records *(relevés comptables)*
A set of data kept at each facility or location outside facilities showing the quantity of each category of nuclear material present, its distribution within the facility and any changes affecting it. For each material balance area, accounting records contain:

- all inventory changes, so as to permit a determination of the book inventory at any time
- all measurement results that are used for determination of the physical inventory
- all adjustments and corrections that have been made in respect of inventory changes, book inventories and physical inventories

ACR *(RAC)*
annual compliance report

Act *(Loi)*
The *Nuclear Safety and Control Act*. (Sources: All regulations pursuant to the *Nuclear Safety and Control Act*)
Note: In this glossary, unless otherwise indicated, Act means the *Nuclear Safety and Control Act*. The CNSC also uses "NSCA", especially when distinguishing between two or more acts under discussion.

action level *(seuil d'intervention)*
A specific dose of radiation or other parameter that, if reached, may indicate a loss of control of part of a licensee's radiation protection program and triggers a requirement for specific action to be taken. (**Source**: *Radiation Protection Regulations*)

OR

A specific dose of radiation or other parameter that, if reached, may indicate a loss of control of part of a licensee's radiation protection program or environmental protection program, and triggers a requirement for specific action to be taken. (**Source**: *Uranium Mines and Mills Regulations*)

Note 1: An action level is an indicator of a potential loss of control of part of a program and/or control measure(s). An action level is said to be exceeded if it goes either above an upper limit or below a lower limit, depending on the parameter being measured. Exceeding an action level signals, to both the licensee and regulator, a potential reduction in the effectiveness of the program and/or control measure(s) and may indicate a deviation from normal operation.

Note 2: Action levels are proposed by the licensee and submitted for review and approval by the CNSC. Within the licensing basis for a specific site, action levels should be adjusted (subject to CNSC review and approval) depending on changes to site activities or processes.

Note 3: Exceeding an action level triggers a requirement for a specific action to be taken. Exceeding an action level is not considered a non-compliance; however, failure to respond appropriately is a non-compliance. To respond to an exceedance, a licensee must follow:

- the steps in subsection 6(2) of the *Radiation Protection Regulations*
- requirements in the licensee's code of practice, as set out under subsection 4(2) of the *Uranium Mines and Mills Regulations*
- additional requirements that may be included in the licensee's licensing basis

action notice *(avis d'action)*
A written request that a licensee or a person subject to enforcement action take steps to correct a non-compliance that is not a direct contravention of the *Nuclear Safety and Control Act*, applicable regulations, licence conditions, codes or standards, but which can compromise safety, security or the environment and may lead to a direct non-compliance if not corrected.

active engineered nuclear criticality safety control *(contrôle technique actif de sûreté-criticité nucléaire)*
See engineered (nuclear) criticality safety control.

active threat *(incident en cours)*
One or more adversaries who randomly or systematically inflict death or grievous bodily harm in a very short period of time. Also called active shooter.

activity *(activité)*
The number of nuclear transformations occurring per unit of time, as measured in becquerels. (**Source**: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
OR
See licensed activity.
OR
The condition of being active or moving about.
OR
A particular occupation or pursuit.

actual full cost *(coût entier réel)*
The full cost verified by audited financial statements. (Source: *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*)

adaptive management *(gestion adaptative)*
A planned and systematic process for continuously improving management practices [primarily environmental] by learning from their outcomes. [For an environmental assessment (EA),] it involves, among other things, the implementation of new or modified mitigation measures over the life of a project to address unanticipated environmental effects. (Source: *Practitioners Glossary for the Environmental Assessment of Designated Projects Under the* Canadian Environmental Assessment Act, 2012 [1]).
See also corrective action.
Note: The need to implement adaptive management measures may be determined through an effective follow-up program.

additional safety feature ***(caractéristique de sûreté additionnelle)***
See complementary design feature.

ad hoc bioassay *(essai biologique ponctuel)*
See non-routine bioassay.

adjusted book ending *(stock comptable final)*
See book-adjusted ending.

administrative (nuclear) criticality safety control *(contrôle administratif de sûreté-criticité [nucléaire])*
Either an enhanced or simple administrative control:

- **enhanced administrative control:** a procedurally required or prohibited human action, combined with a physical device that alerts an operator to take action to maintain safe process conditions, or that otherwise adds substantial assurance of the required human performance
- **simple administrative control:** a procedural human action that is prohibited or required to maintain safe process conditions

administrative monetary penalty (AMP) *(sanction administrative pécuniaire [SAP])*
An administrative penalty imposed without court involvement in response to the violation of a regulatory requirement. There is no criminal record associated with an AMP and an AMP can be applied against any party subject to the *Nuclear Safety and Control Act*, including non-licensees.

adverse information *(renseignement défavorable)*
Information about a site access security clearance (SASC) applicant or holder – whether collected by the licensee, outside agencies or a trusted agent – that is questionable in nature, unclear or does not match the information provided by the applicant. The information collected may indicate:

- a gap in history
- a poor credit rating
- a criminal conviction
- links to a criminal element
- concerns related to the reliability or trustworthiness of a SASC applicant or holder

AECL *(EACL)*
Atomic Energy of Canada Limited

affected facilities *(installations touchées)*
Onsite locations under duress and the components, the affected facility/unit(s) and their components that control, contain and cool nuclear substances and prevent the release of nuclear substances.

ageing
See aging.

aging *(vieillissement)*
The gradual change of the characteristics of a structure, system or component over time or with use.
Note: One or more mechanisms may drive physical aging. Physical aging is due to physical, mechanical, thermal, electrical, chemical, irradiation and/or biological processes (aging mechanisms). Non-physical aging means becoming out of date (obsolete) due to the evolution of knowledge and technology and associated changes in codes and standards.

aging degradation *(dégradation due au vieillissement)*
Aging effects that could impair the ability of a structure, system or component to function within its acceptance criteria.

aging effects *(effets du vieillissement)*
Net changes in the characteristics of a structure, system or component that occur with time or use and are due to aging mechanisms.

aging management (AM) *(gestion du vieillissement)*
Engineering, operations, inspection and maintenance actions to control, within acceptable limits, the effects of physical aging and obsolescence of structures, systems and components.

aging management program / aging management plan (AM program/plan) *(programme ou plan de gestion du vieillissement [programme ou plan de GV])*
A set of policies, processes, procedures, arrangements and activities that provides direction for managing the aging of a nuclear power plant's structures, systems and components (SSCs). AM program refers to the overall integrated aging management program or framework for a nuclear facility, while AM plan refers to a plan that is SSC specific or mechanistic based. Also called lifecycle management plan.
Note: The acronym AMP is now reserved for administrative monetary policy.

aging mechanism *(mécanisme de vieillissement)*
A specific process that, with time or use, gradually changes characteristics of a structure, system or component. Some examples are thermal or radiation embrittlement, corrosion, fatigue, creep and erosion.

agitation *(agitation)*
The physical movement of Raschig glass rings relative to one another that may cause breakage or gravitational settling.

air kerma *(kerma de l'air)*
The kerma (kinetic energy released in matter) value for air, in gray, where kerma (K) is defined as:

$$\mathrm{K} = \frac{\mathrm{d}E_{\mathrm{tr}}}{\mathrm{d}m}$$

where $\mathrm{d}E_{\mathrm{tr}}$ is the sum of the initial kinetic energies of all charged ionizing particles liberated by uncharged ionizing particles in air of mass d*m*.

ALARA *(ALARA)*
See as low as reasonably achievable.

ALI *(LAI)*
See annual limit on intake.

alpha counter *(compteur de particules alpha)*
An instrument designed and manufactured to detect and count alpha particle emissions.

alpha particle *(particule alpha)*
A positively charged particle ejected spontaneously from the nuclei of some radioactive elements.
Note: An alpha particle is identical to a helium nucleus, which has a mass number of 4 and an electrostatic charge of +2. An alpha particle has low penetrating power and a short range (a few centimetres in air). Alpha particles will generally fail to penetrate the dead layers of cells covering the skin and can be easily stopped by a sheet of paper. However, alpha-emitting isotopes are harmful if ingested.

alpha radiation *(rayonnement alpha)*
See alpha particle.

alternative activity limit for an exempt consignment *(autre limite d'activité pour un envoi exempté)*
In respect of an instrument or article, means an activity limit for a consignment that is above the activity level for an exempt consignment set out in the IAEA Regulations and that has been approved as meeting the exemption criteria set out in those Regulations for an instrument or article. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

AM *(GV)*
See aging management.

AMP *(SAP* ou *PGV)*
See administrative monetary penalty ***or*** aging management program / aging management plan.
Note: The acronym AMP is now reserved for administrative monetary penalty.

AM program / AM plan *(programme ou plan de gestion du vieillissement [GV])*
See aging management program / aging management plan.

analyst *(analyste)*
A person designated as an analyst under section 28. (Source: *Nuclear Safety and Control Act*)

analytical decision level *(niveau de décision analytique [niveau critique])*
The amount of a count or final instrument measurement of a quantity of analyte at or above which a decision is made that a positive quantity of the analyte is present (measured in becquerels per litre).

annual limit on intake (ALI) *(limite annuelle d'incorporation [LAI])*
The activity, in becquerel, of a radionuclide that will deliver an effective dose of 20 mSv during the 50-year period after the radionuclide is taken into the body of a person 18 years old or older or during the period beginning at intake and ending at age 70 after it is taken into the body of a person less than 18 years old. (Source: *Radiation Protection Regulations*)

ANO *(ONA)*
authorized nuclear operator; see reactor operator

ANS *(ANS)*
American Nuclear Society

ANSI *(ANSI)*
American Nuclear Standards Institute

anticipated operational occurrence (AOO) *(incident de fonctionnement prévu [IFP])*
An operational process deviating from normal operation that is expected to occur at least once during the operating lifetime of a reactor facility but, because of appropriate design provisions, does not cause any significant damage to items important to safety or lead to accident conditions. AOO is a plant state. Some examples of AOO are loss of normal electrical power and faults such as a turbine trip, malfunction of individual items of a normally running plant, failure of individual items of control equipment to function, and loss of power to the main coolant pump.

AOO *(IFP)*
See anticipated operational occurrence.

applicant *(demandeur)*
An organization or person that has applied to the CNSC for a licence or for certification. For example, an applicant that applies for a licence to construct a nuclear facility has the overall responsibility, and controlling and coordinating authority, for overseeing the safe and satisfactory completion of all design, procurement, manufacturing, construction and commissioning work.

OR

Any person applying for a site access security clearance (SASC) to a high-security site in Canada. **Note:** CNSC staff who are not inspectors and/or do not hold a Level II Secret Government of Canada clearance will apply for a CNSC SASC to work at the licensed facility.

applicant authority *(responsable de la demande)*
A position within an applicant's organizational structure with power to direct the application of financial and human resources.

areal density *(densité surfacique)*
The product of the thickness of a uniform slab and the density of fissionable material within the slab; hence, areal density is the mass of fissionable material per unit area of slab. **Note:** For non-uniform slurries, the areal density limits are valid for a horizontal slab subject to gravitational settling, provided the restrictions for uniform slurries are met throughout.

area(s) of applicability *(domaine[s] d'applicabilité)*
The limiting ranges of material compositions, geometric arrangements, neutron energy spectra and other relevant parameters (such as heterogeneity, leakage, interaction or absorption) within which the bias of a calculational method is established.

array *(réseau)*
Any fixed configuration of fissile or fissionable material units maintained by mechanical devices.

ASDV *(VDVA)*
atmospheric steam discharge valve

as-found condition *(état observé)*
The condition of an item when it was first found, received, inspected or otherwise designated for current use, and prior to any subsequent corrective work being performed on the item (for example, cleaning, calibration, adjustment, servicing, repair or refurbishment).

as low as reasonably achievable (ALARA) *(niveau le plus bas qu'il soit raisonnablement possible d'atteindre [ALARA])*
A principle of radiation protection that holds that exposures to radiation are kept as low as reasonably achievable, social and economic factors taken into account. Section 4 of the *Radiation Protection Regulations* stipulates licensee requirements with respect to ALARA.

ASME *(ASME)*
A professional association, founded as the American Society of Mechanical Engineers.

assembly *(assemblage)*
See fissile assembly.

assessment *(évaluation)*
The process and the result of systematically evaluating the protection and safety measures, aimed at quantifying performance measures for comparison with criteria. **Note:** Assessment should be distinguished from analysis. Assessment is aimed at providing information that forms the basis for deciding whether or not something is satisfactory. Various kinds of analysis may be used as tools when making an assessment; therefore, an assessment may include a number of analyses.

atom *(atome)*
The smallest particle of an element that cannot be divided or broken up by chemical means. The atom consists of a central core (or nucleus), containing protons and neutrons, with electrons revolving in orbits in the region surrounding the nucleus.

at power *(exploitation normale)*
An operational state characterized by the following conditions:

- the reactor being critical
- automatic actuation of safety systems not blocked
- essential support systems aligned in their normal power configuration

authorized health physicist *(spécialiste principal en radioprotection)*
See senior health physicist.

authorized nuclear operator (ANO) *(opérateur nucléaire autorisé [ONA])*
See reactor operator.

availability *(disponibilité)*
The fraction of time that a component or system is able to function. Availability can also mean the probability that a component or system will be able to function at any given time.

B

background radiation *(rayonnement de fond)*
The dose or dose rate (or an observed measure related to the dose or dose rate) attributable to all sources other than the one specified.

back-out dose limit *(limite de dose de marche arrière)*
The predetermined dose limit that should prompt emergency responders to physically retreat from an area and then assess the situation.

backup trip parameter *(paramètre de déclenchement secondaire)*
See primary and backup (secondary) trip parameter.

balance of the pregnancy *(reste de la grossesse)*
The period from the moment a licensee is informed, in writing, of the pregnancy to the end of the pregnancy. (Source: *Radiation Protection Regulations*)

baseline criteria *(critères de base)*
A set of measurements (or metrics) representing the starting level of performance for a structure, system or component. Baseline criteria are derived from design requirements and are usually established during commissioning and after replacement, overhaul or refurbishment.

basic radionuclide value *(valeur de base pour un radionucléide)*
Either an A_1 in TBq, an A_2 in TBq, an activity concentration limit for an exempt material in Bq/g or an activity limit for an exempt consignment in Bq, as set out in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: Bq/g means becquerels/gram; TBq means terabecquerels.

batch *(lot)*
A portion of nuclear material handled as a unit for nuclear material accounting purposes at a key measurement point. The composition and quantity are defined by a single set of specifications (material description code) or measurements (concentration, enrichment). **Note:** The nuclear material may be in bulk form or contained in a number of separate items. Items included in a batch must contain nuclear material of the same element concentration and enrichment. Items of different material description codes must be reported as separate batches.

batch data *(données concernant le lot)*
The total weight of each element of nuclear material and its isotopic composition as applicable.

BATEA *(MTEAR)*
See best available technology and techniques economically achievable.

BDBA *(AHD)*
See beyond-design-basis accident.

BDBT *(MHD)*
See beyond-design-basis threat.

BDCP *(PCSE)*
See by-difference correction principle.

beam limiter *(obturateur de faisceau)*
A radiation-shielding device, located at the working position of an exposure device, which is designed to reduce the radiation dose rate in directions other than the direction intended for use. The beam limiter may be designed to be used in conjunction with an exposure head or may incorporate an exposure head as an integral part of the device. Also called collimator.

BEAU *(BEAU)*
See best estimate and uncertainty (BEAU) method.

becquerel (Bq) *(becquerel [Bq])*
The International System of Units (SI) unit of radioactivity. One becquerel (Bq) is the activity of a quantity of radioactive material in which one nucleus decays per second. In Canada, the Bq is used instead of the non-SI unit curie (Ci).
Note 1: 1 Bq = 27 pCi (2.7×10^{-11} Ci) and 1 Ci = 3.7×10^{10} Bq.
Note 2: 1 megabecquerel (MBq) = 10^6 Bq
1 gigabecquerel (GBq) = 10^9 Bq
1 terabecquerel (TBq) = 10^{12} Bq

benchmark experiment *(valeur repère)*
With respect to nuclear criticality safety, a well-characterized experiment at the critical state that may be used to establish the reliability of calculational methods.

best available technology and techniques economically achievable (BATEA) *(meilleures techniques existantes d'application rentable [MTEAR])*
Minimum pollution prevention performance standards for which effluent and/or emission concentrations have been demonstrated to be achievable within an industrial sector and are therefore economically achievable across that industrial sector. BATEA takes into account both treatment technologies and techniques used to achieve the desired effluent and/or emission concentrations. The way in which the installation is designed, built, maintained, operated and decommissioned is also considered as part of these technologies and techniques.
Note: BATEA may change over time as technologies and techniques are improved. As a best practice, BATEA should be reviewed periodically.

best estimate *(meilleure estimation)*
With respect to safety analysis, an unbiased estimate obtained by using a mathematical model, calculation method or data to realistically predict behaviour and important parameters.

best estimate and uncertainty (BEAU) method *(méthode de la meilleure estimation et des incertitudes [BEAU])*
An analysis that assumes more realistic initial and boundary conditions with all uncertainties (those associated with assumptions, models and computer codes) defined to a high level of confidence.

best estimate method *(méthode de la meilleure estimation)*
A method designed to give realistic results.

best practice *(pratique exemplaire)*
An industry-accepted approach (for example, toward a design, process or procedure) that is acknowledged as consistently producing superior results.

beta backscatter gauging *(jaugeage de rétrodiffusion bêta [Beta Backscatter])*
The use of beta-emitting nuclear substances incorporated in a radiation device to measure the thickness of material. The term is used as a licence use type.

beta particle *(particule bêta)*
A charged particle that is emitted from the nucleus of a radioactive element during radioactive decay of an unstable atom. Large amounts of beta radiation may cause skin burns, and beta emitters are harmful if they enter the body. Beta particles may be stopped by thin sheets of metal or plastic.

beta radiation *(rayonnement bêta)*
See beta particle.

beyond-design-basis accident (BDBA) *(accident hors dimensionnement [AHD])*
An accident less frequent and potentially more severe than a design-basis accident. **Note:** For a reactor facility, a beyond-design-basis accident may or may not involve fuel degradation.

beyond-design-basis threat (BDBT) *(menace hors dimensionnement [MHD])*
Threat conditions, more severe than a design-basis threat, that may result in structural degradation and may involve confinement degradation.

bias *(biais)*
A measure of the systematic differences between calculational method results and experimental data. Uncertainty arises from a systematic error that is known to cause deviation in a fixed direction.

bioassay *(essai biologique)*
The study of all living organisms to measure the effect of a substance, factor or condition by comparing before-and-after exposure or other data. **Note:** Specific to radiation exposure in humans, bioassay is any procedure used to determine the nature, activity, location or retention of radionuclides in a body by direct (*in vivo*) measurement or by indirect (*in vitro*) analysis of material excreted or otherwise removed from a body. *In vivo* bioassay may be referred to as direct bioassay; *in vitro* bioassay may be referred to as indirect bioassay.

biokinetic model *(modèle de biocinétique)*
A mathematical description of the behaviour of radionuclides in the metabolic processes of cells, tissues, organs and organisms. The term is most frequently used to describe distribution of radionuclides among tissues and excretion.

biota *(biote)*
All living organisms, including humans.

biotic *(biotique)*
Relating to the living parts of the environment: plants, animals and microorganisms. Biotic components include any part of the environment considered important by the licensee, the general public, the scientific community, the Government of Canada, and any environmentally sensitive habitat.

blinding *(« en aveugle »)*
Conditions for which an actuation or conditioning signal is approached but not reached, either because of the small magnitude of the initiating event or the actions of any other process or safety system.

boiler *(générateur de vapeur)*
See steam generator.

boiling water reactor (BWR) *(réacteur à eau bouillante [REB])*
A common type of light-water reactor, where water is allowed to boil in the core, generating steam directly in the reactor vessel to generate electrical power.

book-adjusted ending *(stock comptable final)*
The algebraic sum of the beginning physical inventory and of the inventory changes of a material balance area over a given period, adjusted to take account of shipper–receiver differences. Also called adjusted book ending.

book inventory *(stock comptable)*
The algebraic sum for a given point in time of the most recent physical inventory of a material balance area and all inventory changes that have occurred since that physical inventory was taken.

borehole tube tagging *(marquage de tuyaux de sondage)*
The use of nuclear substances placed subsurface or in equipment intended for subsurface use for determining borehole depth or direction. This term is used as a licence use type.

borescope *(endoscope)*
An inspection tool with a rigid or flexible optical tube designed for insertion into bores and cavities. The borescope consists of a lens positioned in front of a long tube containing image and illumination relays.

boundary conditions *(conditions aux frontières)*
The values of variables in a mathematical model that are assumed at the spatial bounds of the model.

bounding assessment *(évaluation de délimitation)*
An assessment designed to provide limiting or worst-case predictions, based on simplification of the processes being simulated or the use of data limits (such as maximum possible precipitation or thermodynamic solubility limits).

bounding event *(événement limitatif)*
The event with the smallest predicted margin to a specific acceptance criterion.

Bq *(Bq)*
See becquerel.

brachytherapy machine *(appareil de curiethérapie)*
See brachytherapy remote afterloader.

brachytherapy remote afterloader *(appareil de curiethérapie à projecteur de source télécommandé)*
A device that is designed to place, by remote control, a sealed source inside or in contact with a person for therapeutic purposes and to remove, by remote control, the sealed source once a preset dose of radiation has been delivered or after a preset time has elapsed. (Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

Bremsstrahlung *(rayonnement de freinage [Bremsstrahlung])*
Electromagnetic radiation produced by the deceleration of a charged particle, such as an electron, when deflected by another charged particle, such as an atomic nucleus.

buckling *(flambage)*
In engineering, a failure mode characterized by the sudden failure of a structural member (for example, a containment shell) that is subjected to high compressive stresses, where the actual compressive stresses at failure are smaller than the ones that the material is capable of withstanding. Also called failure due to elastic instability.

bulk form *(matière en vrac)*
Material such as a liquid, gas, powder, pellets or pebbles which, due to its containment, is not individually identified for accounting purposes. Bulk form material may be contained in a tank, drum, tote or box.

bulk quantity *(quantité en vrac)*
Means, in respect of the terms "exemption quantity" and "unconditional clearance level",
(a) when referred to in section 5, a quantity of material greater than one tonne; and
(b) when referred to in section 5.1, a quantity of material greater than one tonne per year per nuclear facility.
(Source: *Nuclear Substances and Radiation Devices Regulations*)

burnup *(combustion nucléaire)*
See fuel burnup.

BWR *(REB)*
See boiling water reactor.

by-difference correction principle (BDCP) *(principe de correction selon l'écart [PCSE])*
The principle by which a correction to an inventory change data element in a report is applied within the material balance period in which the change is dated. The weight difference between the original record and the correcting record is recorded in the accounts (that is, general ledger) on the date the correction to the inventory change is realized and recorded.

C

calandria tube *(tube de calandre)*
One of a set of tubes that span the calandria and separate the pressure tubes from the moderator. Each calandria tube contains one pressure tube, with an insulating gas between the calandria tube and the pressure tube.

calculational method *(méthode de calcul)*
The calculational procedures – mathematical equations, approximations, assumptions, associated numerical parameters (such as cross-sections) – that yield the calculated results.

calendar year *(année civile)*
A period of 12 consecutive months beginning on January 1.

calibration *(étalonnage)*
The process to verify that, with a known precision input, a model, instrument or channel parameter gives the required output.

Canada/IAEA Safeguards Agreement *(Accord relatif aux garanties entre le Canada et l'AIEA)*
See IAEA Agreement *or* safeguards agreement.

Canadian Nuclear Safety Commission (CNSC) *(Commission canadienne de sûreté nucléaire [CCSN])*
Canada's nuclear regulator, established under the *Nuclear Safety and Control Act* to regulate the use of nuclear energy and materials to protect health, safety, security and the environment; to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific, technical and regulatory information to the public.

Canadian Standards Association (CSA) *(Association canadienne de normalisation [CSA])*
See CSA Group.

CANDU reactor *(réacteur CANDU)*
A Canadian-invented pressurized heavy-water reactor that uses heavy water (deuterium oxide) for moderator and coolant and natural uranium for fuel. "CANDU" is short for CANada Deuterium Uranium. Also called CANDU.

carrier *(transporteur)*
Has the same meaning as in section 1.4 of the *Transportation of Dangerous Goods Regulations*. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

catch-all controls *(contrôles « fourre-tout »)*
See end-use controls.

Category I nuclear material *(matière nucléaire de catégorie I)*
A nuclear substance listed in column 1 of Schedule 1 that is in the corresponding form set out in column 2 and the corresponding quantity set out in column 3 of Schedule 1. (Source: *Nuclear Security Regulations*) **Note:** Use Roman numerals for this term. Also note that categories for nuclear material do not have the same meaning as categories for sources (compare to Category 1 source).

Category 1 source *(source de catégorie 1)*
A sealed source that, if not safely managed or securely protected, would be likely to cause permanent injury to a person who handled it, or was otherwise in contact with it, for more than a few minutes. It would probably be fatal to be close to this amount of unshielded radioactive material for a period of a few minutes to an hour. In Canada, these sources are typically used in practices such as self-shielded irradiators and radiation teletherapy. **Note:** Use Arabic numerals for this term. Also note that categories for sources do not have the same meaning as categories for nuclear material (compare to Category I nuclear material).

Category II nuclear material *(matière nucléaire de catégorie II)*
A nuclear substance listed in column 1 of Schedule 1 that is in the corresponding form set out in column 2 and the corresponding quantity set out in column 4 of Schedule 1. (Source: *Nuclear Security Regulations*) **Note:** Use Roman numerals for this term. Also note that categories for nuclear material do not have the same meaning as categories for sources (compare to Category 2 source).

Category 2 source *(source de catégorie 2)*
A sealed source that, if not safely managed or securely protected, could cause permanent injury to a person who handled it, or was otherwise in contact with it, for a short time (minutes to hours). It could possibly be fatal to be close to this amount of unshielded radioactive material for a period of hours to days. In Canada, these sources are typically used in practices such as industrial gamma radiography and oil well logging. **Note:** Use Arabic numerals for this term. Also note that categories for sources do not have the same meaning as categories for nuclear material (compare to Category II nuclear material).

Category III nuclear material *(matière nucléaire de catégorie III)*
A nuclear substance listed in column 1 of Schedule 1 that is in the corresponding form set out in column 2 and the corresponding quantity set out in column 5 of Schedule 1. (Source: *Nuclear Security Regulations*) **Note:** Use Roman numerals for this term. Also note that categories for nuclear material do not have the same meaning as categories for sources (compare to Category 3 source).

Category 3 source *(source de catégorie 3)*
A sealed source that, if not safely managed or securely protected, could cause permanent injury to a person who handled it, or was otherwise in contact with it, for some hours. It could possibly – although it is unlikely – be fatal to be close to this amount of unshielded radioactive material for a period of days to weeks. In Canada, these sources are typically used in practices such as fixed nuclear gauges and high dose rate brachytherapy. **Note:** Use Arabic numerals for this term. Also note that categories for sources do not have the same meaning as categories for nuclear material (compare to Category III nuclear material).

Category 4 source *(source de catégorie 4)*
A sealed source that is very unlikely to permanently injure anyone. However, this amount of unshielded radioactive material, if not safely managed or securely protected, could possibly – although it is unlikely – temporarily injure someone who handled it or was otherwise in contact with it, or who was close to it for a period of many weeks. In Canada, these sources are typically used in practices such as portable nuclear gauges. **Note:** Use Arabic numerals for this term. Also note that categories for sources do not have the same meaning as categories for nuclear material (compare to Category I nuclear material, Category II nuclear material and Category III nuclear material).

Category 5 source *(source de catégorie 5)*
A sealed source that could not permanently injure someone. In Canada, these sources are typically used in practices such as low dose rate brachytherapy or in gas chromatography instruments. **Note:** Use Arabic numerals for this term. Also note that categories for sources do not have the same meaning as categories for nuclear material (compare to Category I nuclear material, Category II nuclear material, and Category III nuclear material).

category change *(changement de catégorie)*
A change in one of the three categories of uranium: depleted uranium, natural uranium and enriched uranium. Category change results in the reduction of one category of uranium and a corresponding increase in another. Uranium can change category as a result of blending, enrichment, depletion or burnup. For example, natural uranium can become depleted uranium as a result of the burnup of uranium-235.

CCF *(DCC)*
See common-cause failure.

CCME *(CCME)*
Canadian Council of Ministers of the Environment

CEAA 2012 *(LCEE 2012)*
Canadian Environmental Assessment Act, 2012

CEDO *(OAEA)*
See certified exposure device operator.

CEPA *(LCPE)*
Canadian Environmental Protection Act, 1999

CEPA toxic *(substance toxique au sens de la LCPE)*
Has the meaning in section 64 of the *Canadian Environmental Protection Act, 1999*.

certificate *(attestation; voir aussi homologation ou document d'homologation)*
A document issued by the Commission or by a designated officer authorized under paragraph 37(2)(b) of the Act, indicating that a person is certified. (Source: *Class I Nuclear Facilities Regulations*)

OR

A document issued by the Commission or by a designated officer authorized under paragraph 37(2)(a) of the Act, indicating that a model of Class II prescribed equipment is certified, or authorized under paragraph 37(2)(b) of the Act, indicating that a person is certified. (Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

OR

A document issued by the Commission or by a designated officer authorized under paragraph 37(2)(a) or (b) of the Act, indicating that prescribed equipment or a person is certified. (Source: *Nuclear Substances and Radiation Devices Regulations*)

OR

A document issued by the Commission under paragraph 21(1)(h) of the Act or by a designated officer authorized under paragraph 37(2)(a) of the Act, indicating the certification of:

(a) a package design;
(b) a design for special form radioactive material;
(c) a design for low dispersible radioactive material;
(d) the calculation of a value demonstrating that fissile-excepted radioactive material will remain subcritical;
(e) the calculation of the basic radionuclide value for radioactive material that has a basic radionuclide value that is not listed in the IAEA Regulations; or
(f) the calculation, for an instrument or article that has an alternative activity limit for an exempt consignment, of the alternative activity limit.

(Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

certification *(accréditation)*
A written attestation from the Commission, or from a designated officer authorized by it, that a person is qualified to carry out licensed activities (including the duties of a given position).

certified *(homologué)*
Certified by the Commission under paragraph 21(1)(i) of the Act or by a designated officer authorized under paragraph 37(2)(b) of the Act. (Source: *Class I Nuclear Facilities Regulations*)

OR

Certified by the Commission under paragraph 21(1)(h) or (i) of the Act or by a designated officer authorized under paragraph 37(2)(a) or (b) of the Act. (Sources: *Class II Nuclear Facilities and Prescribed Equipment Regulations*; *Nuclear Substances and Radiation Devices Regulations*; *Packaging and Transport of Nuclear Substances Regulations, 2015*)

certified exposure device operator (CEDO) *(opérateur d'appareil d'exposition accrédité)*
A person who has the qualifications to safely operate industrial gamma radiography exposure devices anywhere in Canada and who is certified as such by the CNSC.

change *(modification)*
With respect to dosimetry information, any change to that information, such as a decrease or increase to an assigned dose value previously filed with the National Dose Registry. Normally, changes to dosimeter wearing periods are not included as a modification to dosimetry information.

CHF *(densité de flux thermique critique)*
critical heat flux

Ci *(Ci)*
curie; see becquerel

Class I nuclear facility *(installation nucléaire de catégorie I)*
A Class IA nuclear facility and a Class IB nuclear facility. (Source: *Class I Nuclear Facilities Regulations*)

Class IA nuclear facility *(installation nucléaire de catégorie IA)*
Any of the following nuclear facilities:
(a) a nuclear fission or fusion reactor or subcritical nuclear assembly; and
(b) a vehicle that is equipped with a nuclear reactor.
(Source: *Class I Nuclear Facilities Regulations*)

Class IB nuclear facility *(installation nucléaire de catégorie IB)*
Any of the following nuclear facilities:
(a) a facility that includes a particle accelerator, other than a particle accelerator described in paragraphs (d) and (e) of the definition "Class II prescribed equipment" in section 1 of the *Class II Nuclear Facilities and Prescribed Equipment Regulations*;
(b) a plant for the processing, reprocessing or separation of an isotope of uranium, thorium or plutonium;
(c) a plant for the manufacture of a product from uranium, thorium or plutonium;
(d) a plant, other than a Class II nuclear facility as defined in section 1 of the *Class II Nuclear Facilities and Prescribed Equipment Regulations*, for the processing or use, in a quantity greater than 10^{15} Bq per calendar year, of nuclear substances other than uranium, thorium or plutonium;
(e) a facility for the disposal of a nuclear substance generated at another nuclear facility; and
(f) a facility prescribed by paragraph 19(a) or (b) of the *General Nuclear Safety and Control Regulations*.
(Source: *Class I Nuclear Facilities Regulations*)

Class II nuclear facility *(installation nucléaire de catégorie II)*
A facility that includes Class II prescribed equipment. (Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

Class II prescribed equipment *(équipement réglementé de catégorie II)*
[Any of the following:]
(a) an irradiator that uses more than 10^{15} Bq of a nuclear substance;
(b) an irradiator that requires shielding which is not part of the irradiator and that is designed to deliver a dose of radiation at a rate exceeding 1 cGy/min at a distance of 1 m;
(c) a radioactive source teletherapy machine;
(d) a particle accelerator that is capable of producing nuclear energy and has a beam energy of less than 50 MeV for beams of particles with a mass equal to or less than 4 atomic mass units;
(e) a particle accelerator that is capable of producing nuclear energy and has a beam energy of no more than 15 MeV per atomic mass for beams of particles with a mass greater than 4 atomic mass units; or
(f) a brachytherapy remote afterloader.
(Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)
Note: The abbreviation cGy/min means centigray per minute. MeV means megaelectron volts.

Class II prescribed equipment certificate *(homologation d'équipement réglementé de catégorie II)*
A document issued by the Commission or by a designed officer authorized under the *Nuclear Safety and Control Act*, indicating that a model of Class II prescribed equipment is certified for use.

clean waste rock *(stériles propres)*
Rock without the potential to release hazardous and/or nuclear substances that could have a significant adverse effect on human health or harm the environment. Clean rock may still require management for other reasons, such as to control erosion to prevent deposits of sand in local surface water bodies.

clearance level *(seuil de libération)*
With respect to radioactivity levels, the maximum permissible concentrations of radioactivity in or on materials, equipment and sites to be released from regulatory control (for example, becquerels per gram or per square centimetre, near-contact dose rates). Clearance levels may be expressed as conditional or unconditional, depending on whether the specific pathways of release, or destinations for reuse, recycling and/or disposal are specified.

cliff-edge effect *(effet de falaise)*
A small change of conditions that may lead to a catastrophic increase in the severity of consequences. **Note:** Cliff-edge effects can be caused by changes in any of the following: environment characteristics, the event or the facility response.

CM *(gestion de la configuration)*
See configuration management *or* corrective maintenance.

CMD *(CMD)*
See Commission member document.

CNS *(CSN)*
Convention on Nuclear Safety

CNSC *(CCSN)*
See Canadian Nuclear Safety Commission.

CNSC nuclear criticality safety requirements *(exigences de sûreté-criticité nucléaire de la CCSN)*
Regulatory requirements and derived acceptance criteria that are related to nuclear criticality safety and listed in operating licence conditions or other legally enforceable documents.

code 10 *(code 10)*
Chapter 10 of the subsidiary arrangements of the Canada/IAEA Safeguards Agreement.

code accuracy *(exactitude des programmes)*
The degree of closeness of a calculated quantity to its actual value. Code accuracy comprises the bias and variability of bias of a computer code that are derived from the comparison of code predictions with experimental data.

collimator *(collimateur)*
See beam limiter.

Commission *(Commission)*
The Canadian Nuclear Safety Commission established by section 8. (Source: *Nuclear Safety and Control Act*)
Note 1: The Commission consists of not more than seven members, appointed by the Governor in Council, to:

- make independent, fair and transparent decisions on the licensing of nuclear-related activities
- establish legally binding regulations
- set regulatory policy direction on health, safety, security and environmental issues affecting the Canadian nuclear sector

Note 2: This term is not used when the intention is to refer to both Commission members and CNSC staff. See also Canadian Nuclear Safety Commission.

Commission member document (CMD) *(document à l'intention des commissaires [CMD])*
A document prepared for Commission hearings and meetings by CNSC staff, proponents and intervenors.

Commission Tribunal *(tribunal de la Commission)*
A term previously used to refer to the Commission. See Commission.

commissioning *(mise en service)*
A process intended to demonstrate that installed structures, systems and components perform in accordance with their specifications before they are put into service.

committed *(engagée)*
In respect of a dose of radiation, received by an organ or tissue from a nuclear substance during the 50 years after the substance is taken into the body of a person 18 years old or older or during the period beginning at intake and ending at age 70, after it is taken into the body of a person less than 18 years old. (Sources: *Radiation Protection Regulations*; *Packaging and Transport of Nuclear Substances Regulations, 2015*)

common cause *(cause commune)*
See common-cause failure.

common-cause event *(événement de cause commune)*
An event that leads to common-cause failures.

common-cause failure (CCF) *(défaillance de cause commune [DCC])*
A failure of two or more structures, systems, or components due to a single specific event or cause, such as a natural phenomenon (earthquake, tornado, flood, etc.), design deficiency, manufacturing flaw, operation and maintenance error, human-induced destructive event, or aging effect.

complementary design feature *(caractéristique de conception complémentaire)*
A design feature added to the design as a standalone structure, system or component (SSC) or added capability to an existing SSC to cope with design extension conditions. Also called additional safety feature.

complementary indicator *(indicateur complémentaire)*
A performance or safety indicator that is not specified by legislation or regulation and is not a direct measure of performance or safety (safety indicators), but is used to complement the use of these more direct indicators. **Note:** Complementary indicators are often intermediate parameters from which performance or safety indicators can be derived, but are easier to calculate and monitor (for example, concentration of contaminant releases as a complementary indicator to human exposure to that contaminant). Complementary indicators can be useful in scoping calculations.

compliance *(conformité)*
Conformity by regulated persons or organizations with the requirements of the *Nuclear Safety and Control Act* (NSCA), the regulations made under the NSCA, and licences, decisions, certificates and orders made by the CNSC.

concentrate *(concentré)*
An extracted product that contains uranium and that results from the physical or chemical separation of uranium from ore. (Source: *Uranium Mines and Mills Regulations*)
Note: See also uranium concentrate.

conditional clearance level *(niveau de libération conditionnelle)*
An activity concentration that does not result in an effective dose
(a) greater than 1 mSv in a year due to a low probability event referred to in the IAEA Safety Standard RS-G-1.7 [2]; or
(b) greater than 10 µSv in a year.
(Source: *Nuclear Substances and Radiation Devices Regulations*)
Note: The abbreviation µSv means microsievert.

condition assessment *(évaluation de l'état)*
An assessment performed to determine the current performance and condition of a structure, system or component (SSC) (including any age-related failures or indications of significant material degradation), and to predict the future performance, extent and rate of aging degradation, and residual service life of the SSC.

condition-based maintenance *(entretien basé sur l'état constaté)*
Maintenance that is planned and performed after identification or diagnosis of a structure, system or component degradation, but before failure occurs. See also predictive maintenance.

condition-based servicing *(entretien basé sur l'état constaté)*
See condition-based maintenance.

condition indicator *(indicateur de l'état)*
A characteristic of a structure, system or component (SSC) that can be observed, measured or trended to infer or directly indicate the SSC's current and future ability to function within acceptance criteria.

condition monitoring *(surveillance de l'état)*
Continuous or periodic inspections, measurements or trending of the performance or physical characteristics of structures, systems and components, to indicate current or future performance and the potential for failure.

configuration management (CM) *(gestion de la configuration)*
The process of identifying and documenting the characteristics of a facility's structures, systems and components (including computer systems and software), and of ensuring that changes to these characteristics are properly developed, assessed, approved, issued, implemented, verified, recorded and incorporated in the facility documentation.

confinement boundary *(enceinte de confinement)*
A continuous boundary without openings or penetrations, which prevents the release of radioactive materials out of the enclosed space.
Note 1: For small or research reactors, confinement, or confinement boundary, is the equivalent of a power reactor containment boundary but does not have significant pressure-retaining capability.
Note 2: For packaging and transport of nuclear substances, confinement means preserving criticality safety, and containment means containing radioactive material.

confinement system *(système d'isolement)*
The assembly of fissile material and packaging components intended to preserve criticality safety. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: For reactor facilities, see confinement boundary.

conservatism *(prudence)*
The use of assumptions that make predictions regarding consequences more severe than if best-estimate assumptions had been used.

conservative calculations *(calculs conservateurs)*
Calculations that are designed to over-predict a parameter with the intention that the reality will not be greater than the prediction. These calculations can be based on simplifications of the processes being simulated (the structure of a model) or on limits of data values used in the model.

conservative method *(méthode prudente)*
A method deliberately leading to results that are intended to be limiting relative to specified acceptance criteria.

consignee *(destinataire)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: In the IAEA Regulations, consignee means any person, organization or government that is entitled to take delivery of a consignment.

consignment *(envoi)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

consignor *(expéditeur)*
Has the same meaning as in section 1.4 of the *Transportation of Dangerous Goods Regulations*. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

containment *(confinement)*
A method or physical structure designed to prevent or control the release of nuclear or hazardous substances. Some examples are:

- for waste management: a barrier system that controls releases to the environment through different chemical and physical applications
- for packaging and transport of nuclear substances: a package or a sealed source containing nuclear substances
- for reactor facilities: see containment structure

OR

The exercise of force that is sufficient to isolate, contain and/or stop an adversary in order to prevent the theft of nuclear material or sabotage to a vital area until the offsite response force can make an effective intervention.

containment envelope *(enceinte de confinement)*
Structures and components that provide a pressure-retaining barrier to prevent or limit the escape of any radioactive matter that could be released from a nuclear reactor.

containment structure *(structure de confinement)*
For reactor facilities, a physical structure designed to prevent uncontrolled release and dispersion of nuclear substances.

containment system *(enveloppe de confinement)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

OR

See containment structure.

contamination *(contamination)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: More generally, contamination refers to nuclear or hazardous substances on surfaces, or within solids, liquids or gases (including the human body), where their presence is unintended or undesirable, or to the process giving rise to their presence in such places.

contamination meter *(contaminamètre)*
A radiation detection instrument designed to measure surface contamination; this meter is not designed to measure radiation dose or dose rate.

continuing training *(formation continue)*
A structured curriculum that maintains and enhances knowledge, skills and safety-related attributes, and that addresses areas such as equipment changes and procedure changes, skill weaknesses, infrequently used and difficult-to-acquire knowledge and skills, and lessons learned from operating experiences. Refresher training, requalification training and update training are also considered continuing training.

contractor *(sous-traitant)*
See vendor/contractor.

control *(contrôle)*
See environmental control.

control adapter *(adaptateur de commande)*
For exposure devices, a component of a control assembly that attaches the control assembly to the exposure container.

control assembly *(assemblage de commande)*
See remote control.

control cable connector *(raccord du câble de commande)*
For exposure devices, a component used to attach a drive cable to a source assembly.

control cable (drive cable) *(câble de commande)*
For exposure devices, a cable or other mechanical means used to push out or retract a sealed source assembly in an exposure container by remote control.

control cable sheath *(gaine du câble de commande)*
For exposure devices, a rigid or flexible tube for guiding a control cable by remote control to an exposure container and for providing physical protection to the control cable.

controlled area *(zone contrôlée)*
See restricted area.

controlled nuclear equipment *(équipement nucléaire contrôlé)*
The controlled nuclear equipment and the parts and components for controlled nuclear equipment referred to in the schedule. (Source: *Nuclear Non-proliferation Import and Export Control Regulations*)
See also nuclear and nuclear-related dual-use items.

controlled nuclear information *(renseignement nucléaire contrôlé)*
The controlled nuclear information referred to in the schedule. (Source: *Nuclear Non-proliferation Import and Export Control Regulations*)
See also nuclear and nuclear-related dual-use items.

controlled nuclear substance *(substance nucléaire contrôlée)*
A controlled nuclear substance referred to in the schedule. (Source: *Nuclear Non-proliferation Import and Export Control Regulations*)
See also nuclear and nuclear-related dual-use items.

controlled parameter *(paramètre contrôlé)*
A parameter that is kept within specified limits, and, when varied, influences the margin of subcriticality.

controller *(contrôleur)*
A person who, during an emergency drill or exercise, provides data and messages to the emergency responders, for example, to ensure that the sequence of events is unfolding as per the scenario.

control mechanism *(mécanisme de commande)*
See remote control.

control Raschig rings (controlled sample) *(anneaux Raschig de contrôle [échantillon contrôlé])*
Raschig rings that are periodically removed from service for scheduled measurements and then returned to service after these short test periods.

control room operator (CRO) *(opérateur de salle de commande [OSC])*
See reactor operator.

control room shift supervisor *(chef de quart de salle de commande)*
The person in a multi-unit nuclear power plant who is responsible to the plant shift supervisor for ensuring that the main control room staff function safely within his or her authority limits and that the conduct of operations within the main control room is performed in accordance with the plant's licence, policies and procedures.

conventional health and safety SCA *(santé et sécurité classiques [DSR])*
A safety and control area (SCA) that covers the implementation of a program to manage workplace safety hazards and to protect personnel and equipment. This SCA is one of the 14 within the CNSC SCA Framework.

conventionally true value *(valeur conventionnellement vraie)*
The value attributed to a particular quantity and accepted, sometimes by convention, as having an uncertainty appropriate for a given purpose. For example, the conventionally true value of $H_p(d)$ is established by measuring the free-in-air kerma (or exposure) in a well-defined field with a calibrated instrument and then applying a conversion coefficient to the result. Sometimes also called best estimate; conventional value; reference value.

conventional value *(valeur conventionnelle)*
See conventionally true value.

conveyance *(moyen de transport)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

core control processes *(processus de contrôle de base)*
A functional area that groups 8 of the 14 safety and control areas (SCAs) within the CNSC SCA Framework: radiation protection, conventional health and safety, environmental protection, emergency management and fire protection, waste management, security, safeguards and non-proliferation, and packaging and transport. Other functional areas are "management" and "facility and equipment".

core damage *(dommage au cœur)*
Accident leading to significant fuel damage. For CANDU reactors, core damage is defined as extensive physical damage of the multiple fuel channels due to overheating leading to loss of core structural integrity.

core damage frequency *(fréquence des dommages au cœur)*
An expression of the likelihood that an accident could cause core damage.

corium *(corium)*
A lava-like molten mixture of portions of nuclear reactor core.

corrective action *(mesure corrective)*
Measure taken to eliminate the cause of a detected nonconformity or other undesirable situation to prevent recurrence. See also adaptive management.

corrective maintenance (CM) *(entretien correctif)*
Actions that, by means of repair, overhaul or replacement, restore the capability of a failed structure, system or component to perform its defined function within the given acceptance criteria.

country of obligation *(pays émetteur d'obligations)*
The country with which Canada has agreed to accept conditions on the use of the nuclear material received from that country. **Note:** The country of obligation is not necessarily the country of origin or of supply. The countries of obligation, origin and supply may all be different. For a given quantity of nuclear material, there may be a single country of obligation, multiple countries of obligation, or no foreign obligation. Material that has no specified obligations is referred to as unobligated.

country of origin *(pays d'origine)*
The country where specified nuclear material was mined.

country of supply *(pays du fournisseur)*
The country from which specified nuclear material was shipped prior to entering Canada.

cranking mechanism *(mécanisme à manivelle)*
See remote control.

crawler control *(commande de chenille [crawler])*
The use of sealed sources to remotely direct the movement of an industrial radiography pipeline crawler unit.

credible abnormal conditions *(conditions anormales crédibles)*
Accidents or accident sequences that have a frequency of occurrence equal to or more than one in a million years. This definition applies specifically to nuclear criticality safety.

crediting *(validation)*
For a safety analysis, assuming the correct operation of a structure, system or component, or correct operator action.

criminal records name check (CRNC) *(vérification nominale du casier judiciaire (VNCJ)*
A search used to determine if a person has a criminal record. The search can be based on name and date of birth or, for much greater assurance, on fingerprints for positive identification.

critical component *(composant critique)*
For exposure devices, a component that is essential to the safe operation of the device, in order to prevent a misconnect or disconnect.

critical group *(groupe critique)*
A uniform or reasonably homogeneous group of people whose characteristics (such as habits, location or age) cause them to be representative of the more highly exposed individuals, receiving the highest effective dose or equivalent dose (as applicable) than other groups in the exposed population.

criticality *(criticité nucléaire)*
See nuclear criticality.

criticality accident *(accident de criticité)*
The release of energy as a result of accidental production of a self-sustaining or divergent neutron chain reaction.

criticality safety control (CSC) *(contrôle de sûreté-criticité [CSC])*
See nuclear criticality safety control.

criticality safety index (CSI) *(indice de sûreté-criticité [ISC])*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

criticality safety staff *(personnel de sûreté-criticité)*
See nuclear criticality safety staff.

CRNC *(VNCJ)*
See criminal records name check.

CRO *(OSC)*
control room operator; see reactor operator

CSA *(CSA)*
See CSA Group.

CSA Group *(Groupe CSA)*
A standard-setting body that works with the regulator, industry and stakeholders to produce consensus-based Canadian industry standards that may be used by the regulator or industry. Formerly called Canadian Standards Association.

CSC *(CSC)*
See nuclear criticality safety control.

CSDV *(SEVC)*
condenser steam discharge valve

CSI *(ISC)*
See criticality safety index.

curie *(curie)*
See becquerel.

CVC *(CVC)*
compliance verification criteria

cyber security *(cybersécurité)*
Protection of digital computer-based systems or components throughout the system's lifecycle from threats and malicious actions, or from inadvertent actions that result in unintended consequences. Cyber security includes protection from unauthorized, unintended and unsafe modifications to the system, and from unauthorized disclosure and retention of information, software or data associated with the system that could be used to perform malicious or misguided acts that could affect the functionality and performance of the system.

cyclotron *(cyclotron)*
A particle accelerator that speeds up particles in a circular motion until they hit a target at the perimeter of the cyclotron. Some cyclotrons are used to produce medical isotopes.

D

D *(D)*
See absorbed dose.

DA *(AD)*
See derived activity.

DAC *(LDCA)*
See derived air concentration.

damage *(dommage)*
In relation to any damage to property within the meaning of section 3, means any loss of or damage to property, whether real or personal, and, for the purposes of any other provision of this Act, includes any damage arising out of or attributable to any loss of or damage to that property. (Source: *Nuclear Liability Act*)

dangerous occurrence *(situations dangereuses)*
Any of the following situations:
(a) a conveyance carrying radioactive material is involved in an accident;
(b) a package shows evidence of damage, tampering or leakage of its contents, or its integrity is degraded in a manner that may reasonably be expected to impair its ability to comply with [the *Packaging and Transport of Nuclear Substances Regulations, 2015* (PTNSR 2015)] or its certificate;
(c) radioactive material is lost, stolen or no longer in the control of a person who is required to have control of it under the [*Nuclear Safety and Control Act* (NSCA)];
(d) radioactive material has escaped from a containment system, a package or a conveyance during transport;
(e) fissile material is outside the confinement system during transport;
(f) the level of non-fixed contamination, as defined in the IAEA Regulations, during transport exceeds the following limits as applicable when averaged over any area of 300 cm^2 of any part of the surface of the package or the conveyance:
    i. 4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or
    ii. 0.4 Bq/cm^2 for all other alpha emitters;
(g) there is a failure to comply with the provisions of [the NSCA], the provisions of [the PTNSR 2015] or any licence or certificate that is applicable to a package that may reasonably be expected to lead to a situation in which the environment, the health and safety of persons, or national security is adversely affected.
(Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*, section 35)

data element *(élément de données)*
With respect to nuclear material accounting, a unit of information in material balance area records.

date of filing (of a report) *(date de dépôt [d'un rapport])*
The date on which a report is received by the Commission.

DBA *(AD)*
See design-basis accident.

DBE *(SR)*
See design-basis earthquake.

DBT
See design-basis threat.

DCF *(FCD)*
See dose conversion factor.

DEC *(CAD)*
See design extension conditions.

decommissioning *(déclassement)*
Those actions taken to retire a licensed facility permanently from service and render it to a predetermined end-state condition.

defence in depth *(défense en profondeur)*
A hierarchical deployment of different levels of diverse equipment and procedures to prevent the escalation of anticipated operational occurrences and to maintain the effectiveness of physical barriers placed between a radiation source or radioactive material and workers, members of the public or the environment, in operational states and, for some barriers, in accident conditions.

defined specifications *(spécifications définies)*
The criteria that specify the capability or performance level that a structure, system or component of a nuclear power plant (NPP) must possess or attain so that the NPP can function effectively and reliably, in accordance with its safety targets. These criteria are set out in an NPP's version-controlled documents or licensee documents requiring notification of change. **Note:** This definition applies specifically to NPP reporting requirements.

degraded state *(état dégradé)*
The state of a structure, system or component such that it exhibits reduced performance but can still be declared available according to specified success criteria.

deleterious substance *(substance nocive)*
Means:
(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or
(b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water,
and without limiting the generality of the foregoing includes
(c) any substance or class of substances prescribed pursuant to paragraph (2)(a),
(d) any water that contains any substance or class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to paragraph (2)(b), and
(e) any water that has been subjected to a treatment, process or changes prescribed pursuant to paragraph (2)(c).
(Source: *Fisheries Act*)

depleted uranium *(uranium appauvri)*
Uranium that contains uranium-235 in a concentration that is less than that normally found in nature. (Source: *Nuclear Substances and Radiation Devices Regulations*)
Note: In the context of packaging and transport of nuclear substances, depleted uranium means uranium containing a lesser mass percentage of uranium-235 than natural uranium.

derived activity (DA) *(activité dérivée [AD])*
The expected retention or excretion rate, expressed as becquerels or becquerels per day, from a single measurement of a radionuclide made at the end of a monitoring period, such that the corresponding extrapolated annual committed effective dose is equal to 1 millisievert. The DA is calculated with the assumption that the intake occurs at the mid-point in the monitoring period.

derived air concentration (DAC) *(limite dérivée de concentration dans l'air [LDCA])*
The concentration of a radionuclide in air that, when inhaled at a breathing rate of 1.2 m^3 per hour for 2,000 hours per year, results in the intake of 1 annual limit on intake.

derived investigational level (DIL) *(niveau d'enquête dérivé [NED])*
With respect to a program that monitors internal dosimetry, the predetermined level of contamination that triggers an investigation and dose assessment. The DIL, measured in becquerels, is commonly set by programs for monitoring internal contamination and is one of several actions that may be taken when contamination rises above certain levels.

derived reference level *(niveau de référence dérivé)*
Bioassay-determined activity due to occupational sources, measured in becquerels per litre.

derived release limit (DRL) *(limite de rejet dérivée [LRD])*
As defined in the CSA Group publication CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities* [3]:

> the release rate that would cause an individual of the most highly exposed group to receive and be committed to a dose equal to the regulatory annual dose limit due to release of a given radionuclide to air or surface water during normal operation of a nuclear facility over the period of a calendar year.

designated officer (DO) *(fonctionnaire désigné)*
A person designated as a designated officer under section 37. (Source: *Nuclear Safety and Control Act*)
Note: The DO is considered qualified to perform duties specified under the *Nuclear Safety and Control Act*, on behalf of the Commission. The DO may be a CNSC employee or a person otherwise employed under an arrangement with the CNSC.

designated project *(projet désigné)*
One or more physical activities that
(a) are carried out in Canada or on federal lands;
(b) are designated by regulations made under paragraph 84(a) [of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012)] or designated in an order made by the Minister [of the Environment] under subsection 14(2) [of CEAA 2012]; and
(c) are linked to the same federal authority as specified in those regulations or that order.
It includes any physical activity that is incidental to those physical activities. (Source: *Canadian Environmental Assessment Act, 2012*)

design authority *(autorité en matière de conception)*
The entity that has overall responsibility for the design process, or the responsibility for approving design changes and for ensuring that the requisite knowledge is maintained.

design basis *(dimensionnement)*
The range of conditions and events taken explicitly into account in the design of a nuclear facility, according to established criteria, such that the facility can withstand this range without exceeding authorized limits. **Note:** Design extension conditions are not part of the design basis.

design-basis accident (DBA) *(accident de dimensionnement [AD])*
Accident conditions for which a nuclear facility is designed according to established design criteria and for which damage to the fuel and the release of radioactive material are kept within authorized limits. DBA is a plant state.

design-basis earthquake (DBE) *(séisme de référence [SR])*
As defined in the CSA Group publication CSA N289.1-08, *General requirements for seismic design and qualification of CANDU nuclear power plants* [4] referenced in the nuclear power plant licence:

> an engineering representation of potentially severe effects at the site due to earthquake ground motions having a selected probability of exceedance of 1×10^{-4} per year, or such probability level as determined by the regulatory authority.
>
> **Notes:**
>
> 1) DBE ground motions are usually referred to as an "earthquake", and can take the form of a response spectrum, or time history of acceleration, velocity, or displacement.
>
> 2) The DBE is used for the seismic qualification of certain structures, systems, and components. It is used as an input for nuclear power plant seismic design, analysis, and testing to produce a design that is adequate for the specified seismic hazard.
>
> 3) The DBE for some older plants was based on an estimated probability of exceedance of 1×10^{-3} per year or was established deterministically (i.e., without probabilistic measures).

design-basis threat (DBT) *(menace de référence)*
The characteristics of a potential adversary in respect of which countermeasures are incorporated into the design and evaluation of a physical protection system. (Source: *Nuclear Security Regulations*)

design envelope *(enveloppe de conception)*
The range of conditions and events (including design extension conditions) that are explicitly taken into account in the design of a nuclear facility, such that significant radioactive releases would be practically eliminated by the planned operation of process and control systems, safety systems, safety support systems and complementary design features.

design extension conditions (DEC) *(conditions additionnelles de dimensionnement [CAD])*
A subset of beyond-design-basis accidents that are considered in the design process of the facility in accordance with best-estimate methodology to keep releases of radioactive material within acceptable limits. Design extension conditions could include severe accident conditions. DEC is a plant state.

desktop review *(examen des documents)*
Verification activities mostly limited to the review of licensees' documents and reports. Some examples are quarterly technical reports, annual compliance reports, special reports and documentation related to design, safety analysis, programs and procedures.

detailed decommissioning plan *(plan détaillé de déclassement)*
A plan setting out the detailed work program, safety and environmental protection procedures, and management systems that will be followed in the decommissioning of a licensed activity/facility. **Note:** Detailed decommissioning plans should evolve from the preliminary decommissioning plan.

deterministic effect *(effet déterministe)*
A health effect of radiation for which a threshold level of dose generally exists above which the severity of the effect is greater for a higher dose.

deterministic safety analysis *(analyse déterministe de la sûreté)*
An analysis of a nuclear facility's responses to an event, performed using predetermined rules and assumptions (such as those concerning the initial facility operational state, availability and performance of the facility systems and operator actions). Deterministic safety analysis can use either conservative or best-estimate methods.

dewatering water *(eau d'assèchement)*
Groundwater intercepted by pumps to prevent it from flowing into open pits or into the underground workings of a mine.

diagnostic nuclear medicine *(médecine nucléaire diagnostique)*
The administration of unsealed sources (nuclear substances) to humans for diagnostic purposes related to their healthcare. Diagnostic nuclear medicine includes the processing of radiopharmaceuticals and laboratory studies that are part of the diagnostic studies.

DIL *(NED)*
See derived investigational level.

direct bioassay *(essai biologique direct)*
See bioassay.

direct effect *(effet direct)*
An effect in which the cause–effect relationship has no intermediary effects.

direct (*in vivo*) radiobioassay *(essai biologique direct [mesures in vivo])*
See bioassay.

direct regulatory activities *(activités de réglementation directes)*
Those activities, such as assessing applications, issuing licences and certificates, granting approvals and authorizations, verifying and enforcing compliance and providing information, products and services, that are required for the Commission to fulfill its regulatory responsibilities. (Source: *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*)

direct trip parameter *(paramètre de déclenchement direct)*
A process or neutronic parameter that is used to trigger a shutdown action and that is a direct measure of the challenge to derived acceptance criteria or a direct measure of the event taking place.

direct visual surveillance *(surveillance visuelle directe)*
Direct observation by a person who is physically present at the place that is under observation. (Source: *Nuclear Security Regulations*)

disconnect *(déconnecté)*
A condition in which the sealed source assembly is inadvertently released from the control cable.

discretization *(discrétisation)*
A method of approximation of the true mathematical function to be integrated.

dismantle *(démanteler)*
Take apart radiation devices to repair, replace or remove faulty components that may include the nuclear substance of that device (part of the licensed activity of servicing, installation and dismantling of devices containing radioisotopes).

dismounting *(démontage)*
See install.

disorderly crowd *(foule désordonnée)*
A group of people in a recognizable area, with behaviours classified as one of five types: casual, cohesive, expressive, demonstration and aggressive. **Note:** Each type requires careful consideration on how to manage it. The tactics range from simple crowd monitoring to the presence of uniformed officers interacting with individuals in the crowd, to the deployment of an offsite public order unit. Deployment and the tactics used are judgment calls based on the overall strategies determined by the commander to manage crowds at all levels of order, using the least amount of force.

disposal *(évacuation* or *élimination)*
The placement of radioactive waste without the intention of retrieval.

diversity *(diversité)*
The presence of two or more redundant systems or components to perform an identified function, where the different systems or components have different attributes so as to reduce the possibility of common-cause failure.

division *(division)*
The designation applied to a given system or set of components that enables the establishment and maintenance of physical, electrical and functional independence from other redundant sets of components.

DO *(fonctionnaire désigné)*
See designated officer.

dose acceptance criteria *(critères d'acceptation des doses)*
With respect to safety analysis, bounds for radiation doses that are established to protect workers and the public from the release of nuclear substances from a reactor facility during normal operation, anticipated operational occurrences and design-basis accidents.

dose conversion factor (DCF) *(facteur de conversion de la dose [FCD])*
The committed effective dose in sieverts, per unit activity in becquerels, delivered by a given radionuclide of a given form.

dose information *(renseignements sur les doses)*
The occupational radiation doses of monitored workers on record with the National Dose Registry (NDR). This dose information includes annual summaries, discrete dose details, cumulative dose totals, dose histories, dose type, pregnant worker dose information, and exposure to radon progeny. **Note:** Dose information excludes other information in the worker's NDR record, such as the worker's name, date of birth, pregnancy declaration date, social insurance number, employer and job category.

dose limit *(limite de dose)*
A maximum allowable radiation dose (effective dose or equivalent dose), as specified in the *Radiation Protection Regulations*, which is in place to minimize the risk of adverse health effects due to radiation exposure.

dose of record *(dose enregistrée)*
Data about an individual's radiation dose that has been measured by a licensed dosimetry service and submitted to the National Dose Registry.

dosimeter *(dosimètre)*
A device for measuring a dose of radiation that is worn or carried by an individual. (Sources: *Nuclear Substances and Radiation Devices Regulations*; *Radiation Protection Regulations*)
Note: Among common types are thermoluminescent and optically stimulated luminescent dosimeters.

dosimetry period – one-year *(période de dosimétrie d'un an)*
See one-year dosimetry period.

dosimetry period – five-year *(période de dosimétrie de cinq ans)*
See five-year dosimetry period.

dosimetry service *(services de dosimétrie)*
A prescribed facility for the measurement and monitoring of doses of radiation. (Source: *Nuclear Safety and Control Act*)

dosimetry types *(types de dosimétrie)*
The methods used for measuring radiation dose in or excreted from a body or in radioactive atmospheres.

- **External dosimetry** is usually employed for photon (that is, X and gamma) radiation, but may also be used for beta and neutron radiation sources outside of the body.
- **Internal dosimetry** involves bioassay in the form of either *in vitro* monitoring, *in vivo* monitoring, or a combination of the two.
- **Radioactive atmosphere** is usually measured by air monitoring techniques. Typical measurements are for radon progeny and radioactive dusts in uranium mines.

double contingency principle *(principe de contingence double)*
A characteristic or attribute of a process that has incorporated sufficient safety factors so that at least two unlikely, independent and concurrent changes in process conditions are required before a nuclear criticality accident is possible.

drill *(exercice de simulation)*
See emergency drill.

drive cable *(câble de commande)*
See control cable.

drive mechanism *(mécanisme de commande)*
See remote control.

DRL *(LOD)*
See derived release limit.

DSP *(MSD)*
designated supervising physician

dual-use item *(article à double usage)*
See nuclear and nuclear-related dual-use items.

duty area *(fonction)*
One of a job incumbent's main areas of activity or a grouping of closely related tasks.

E

E *(E)*
See effective dose.

EA *(EE)*
See environmental assessment.

EA report *(rapport d'EE)*
See environmental assessment (EA) report under the NSCA ***or*** environmental assessment (EA) report under CEAA 2012.

ECCS *(SRUC)*
See emergency core cooling system.

effective dose (E) *(dose efficace [E])*
The sum of the products, in sievert, obtained by multiplying the equivalent dose of radiation received by and committed to each organ or tissue set out in column 1 of an item of Schedule 1 by the weighting factor set out in column 2 of that item. (Source: *Radiation Protection Regulations*)

Note 1: Effective dose is a measure of the total detriment, or risk, due to an exposure to ionizing radiation. If the exposure to different organs or tissues is not uniform (as is the case when radionuclides are deposited in the body), the concept of effective dose is used. The basic idea is to express the risk from the exposure to a single organ or tissue in terms of the equivalent risk from an exposure to the whole body. The unit of effective dose is the sievert.

Note 2: Equivalent dose and effective dose are protection quantities used to reflect how radiation exposure can affect overall health of the human body. They specify dose values, which are derived from the body's absorbed dose, for limiting the occurrence of stochastic health effects below acceptable levels and avoiding tissue reactions. The effective dose is designed to reflect these differences and how exposure can affect overall health of the whole body.

Note 3: The term weighting factor refers to the tissue weighting factor, which takes into account that different organs and tissue have different radiation sensitivities. For example, bone marrow is much more radiosensitive than muscle or nerve tissue. Effective dose is the summation of the tissue equivalent doses, each multiplied by the appropriate tissue weighting factor. It is defined by:

$$\mathrm{E} = \sum_{\mathrm{T}} \mathrm{w}_{\mathrm{T}} \sum_{\mathrm{R}} \mathrm{w}_{\mathrm{R}} D_{T,R}$$

where w_{T} is the tissue weighting factor with $\sum \mathrm{w}_{\mathrm{T}} = 1$. The sum is performed over all organs and tissues considered in the definition of E.

Note 4: Use of absorbed dose alone is not valid for estimating risk, as radiation effects depend not only on the absorbed dose but also on a) the type of radiation, b) the distribution of energy absorption in time and space within the human body and c) the radiosensitivity of the exposed tissues or organs.

See also absorbed dose, equivalent dose.

effective full power hour (EFPH) *(heure équivalente pleine puissance HEPP])*
See equivalent full power hour (EFPH).

effective half-life *(demi-vie effective)*
The time required for a radionuclide deposited in the body to decrease to one-half of its initial quantity as a result of the combined action of radioactive decay and biological elimination.

effective intervention *(défense efficace)*
An intervention that is timely and powerful enough to prevent a person or a group of persons, including those equipped with weapons or explosive substances, from committing sabotage or from removing Category I, II or III nuclear material otherwise than in accordance with a licence. (Source: *Nuclear Security Regulations*)

effective kilogram (Ekg) *(kilogramme effectif [kgE])*
A unit of measurement used in accounting and reporting of safeguarded nuclear material. The quantity in effective kilograms is obtained by taking:

- for plutonium, its weight in kilograms
- for uranium with an enrichment of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its enrichment
- for uranium with an enrichment below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001
- for depleted uranium with an enrichment of 0.005 (0.5%) or below, and for thorium, its weight in kilograms multiplied by 0.00005

effective multiplication factor (k_{eff}) *(facteur de multiplication effectif [k_{eff}])*

- **Physically**, the ratio of the total number of neutrons produced during a time interval (excluding neutrons produced by sources whose strengths are not a function of fission rate) to the total number of neutrons lost by absorption and leakage during the same interval.
- **Mathematically** (computationally), the eigenvalue number that, when divided into the actual mean number of neutrons emitted per fission in an assembly of materials, would make the calculated result for the nuclear chain reaction of that assembly critical.

Also called effective neutron multiplication factor.

effluent *(effluent)*
A waterborne release of a hazardous or nuclear substance to the environment.
Note: This definition differs from that in CSA N288.6, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills* [5], which defines effluent as "the release of contaminants into the environment (including both air and water) as a result of a licensed activity during normal operations".
See also emission.

EFPH *(HEPP)*
See equivalent full power hour.

EHRS *(SEUC)*
emergency heat removal system

EIR *(RIE)*
event initial report

EIS *(EIE)*
See environmental impact statement.

Ekg *(kgE)*
See effective kilogram.

electrical interaction *(interaction électrique)*
A force of repulsion acting between electric charges of like sign (charge), or a force of attraction acting between electric charges of unlike sign (charge).

electron volt (eV) *(électronvolt [eV])*
A unit of energy employed in radiation physics. An eV is equal to the energy that an electron gains when it passes through a potential difference of 1 volt. 1 eV = 1.6 x 10^{-19} joules.

EME *(EAU)*
emergency mitigating equipment

emergency coordinator *(coordonnateur des mesures d'urgence)*
A person authorized to direct an overall emergency response.

emergency core cooling system (ECCS) *(système de refroidissement d'urgence du cœur [SRUC])*
A safety system that transfers heat from a reactor core, following a loss of reactor coolant or certain other accidents that exceed makeup capability.

emergency drill *(manœuvre d'urgence)*
Supervised instruction intended to test, develop, maintain and practise the skills required in a particular emergency response activity.

emergency exercise *(exercice d'urgence)*
Simulation of emergency events to test the integrated performance of an emergency response scenario. With respect to nuclear criticality safety, this term means an activity that tests one or more portions of the integrated capability of emergency response plans, equipment and organizations.

emergency management and fire protection SCA *(DSR Gestion des urgences et protection-incendie)*
A safety and control area (SCA) that covers emergency plans and emergency preparedness programs that exist for emergencies and for non-routine conditions. This area also includes any results of participation in exercises. This SCA is one of the 14 within the CNSC SCA Framework.

emergency plan *(plan d'urgence)*
The documented measures required of applicants and licensees under the *Class I Nuclear Facilities Regulations* and *Uranium Mines and Mills Regulations*. Accordingly, an emergency plan for a Class I nuclear facility or a uranium mine or mill consists of a proposed or actual program to cope with accidental releases. This program encompasses both emergency preparedness and emergency response measures.

emergency response *(intervention d'urgence)*
The integrated set of equipment, procedures and personnel necessary for performing a specified function or task required for preventing, mitigating or controlling the effects of an accidental release.
OR
With respect to nuclear criticality safety, actions taken from the time of identification of a suspected, imminent or actual criticality accident until stabilization of the event. These actions include the assumption that an accident has occurred, there has been a response to the emergency, and actions to begin subsequent recovery operations have taken place.

emergency response facility *(installation d'intervention d'urgence)*
An area or room that can be immediately activated when required during an emergency/incident.

emergency response organization (ERO) *(organisation d'intervention d'urgence [OIU])*
A group of interrelated responders with predefined roles and responsibilities, who work together to mitigate the consequences of an emergency.

emission *(émission)*
An airborne release of a hazardous or nuclear substance to the environment. An emission may include point sources, fugitive emissions or area sources. See also effluent.

EMS *(SGE)*
See environmental management system.

enabling objective (EO) *(objectif de base)*
A principal learning unit that constitutes a major step towards achieving one or more associated terminal learning objectives. The EO consists of a performance statement, condition statement and a standard.

end state *(état final)*
With respect to decommissioning, the proposed physical, chemical and radiological condition of a facility at the end of the decommissioning program. **Note:** Where a decommissioning program is to take place in discrete phases, the interim end-state objectives for each phase should be defined.

end-use controls *(contrôles de l'utilisation ultime)*
Controls over items that are not otherwise listed in the *Nuclear Non-proliferation Import and Export Control Regulations*, when such items may be intended for use in connection with a nuclear weapons program or nuclear explosive device. Also called catch-all controls.

enforcement *(application)*
All activities to compel a licensee back into compliance and to deter further non-compliances with the *Nuclear Safety and Control Act* (NSCA), the regulations made under the NSCA, and licences, decisions, certificates and orders made by the CNSC.

engineered (nuclear) criticality safety control *(contrôle technique de sûreté-criticité [nucléaire])*
Either an active or passive engineered control:

- **active engineered control:** a physical device that uses active sensors, electrical components or moving parts to maintain safe process conditions without any required human action
- **passive engineered control:** a device that uses only fixed physical design features to maintain safe process conditions without any required human action

enhanced administrative control *(contrôle administratif amélioré)*
See administrative (nuclear) criticality safety control.

enriched uranium *(uranium enrichi)*
Uranium having a higher abundance of the fissile isotopes (uranium-235, uranium-233 or a combination of both) than natural uranium. **Note:** In the context of packaging and transport of nuclear substances, enriched uranium means uranium containing a greater mass percentage of uranium-235 than 0.72 percent. A very small mass percentage of uranium-234 is present.

environment *(environnement)*
The components of the Earth:

- land, water and air, including all layers of the atmosphere
- all organic and inorganic matter and living organisms
- the interacting natural systems that include the above components

environmental assessment (EA) *(évaluation environnementale [EE])*
An assessment of the environmental effects of a project. See also environmental assessment (EA) under CEAA 2012 ***or*** environmental assessment (EA) under the NSCA.

environmental assessment (EA) report for an EA under CEAA 2012 *(rapport d'évaluation environnementale [EE] pour une EE en vertu de la LCEE 2012)*
A document summarizing the EA process [under the *Canadian Environmental Assessment Act, 2012*] that takes into consideration the analysis by the proponent and associated perspectives of expert federal authorities, the public, Aboriginal groups, the province (as appropriate) and the responsible authority. (Source: *Practitioners Glossary for the Environmental Assessment of Designated Projects under the* Canadian Environmental Assessment Act, 2012 [1]) See also environmental assessment (EA) report for an EA under the NSCA.

environmental assessment (EA) report for an EA under the NSCA *(rapport d'évaluation environnementale [EE] pour une EE en vertu de la LSRN)*
A report prepared by CNSC staff, for the Commission or a designated officer, which documents the findings of an EA under the *Nuclear Safety and Control Act* (NSCA).
Note: On a case-by-case basis, CNSC staff determine the content and appropriate level of detail of this type of report, based on and commensurate with the scale and complexity of the facility or activity and taking into consideration Indigenous, public and regulatory interest. This type of EA report describes and summarizes the results of environmental monitoring, effluent and emissions monitoring and the risks to the environment and the public. Where available, environmental compliance monitoring data and the results of any sampling and analysis activities of the Independent Environmental Monitoring Program (IEMP) conducted near facilities are also included. In particular, the EA report for an EA under the NSCA covers those elements of the facility or activity that are deemed to be of Indigenous, public or general interest. See also environmental assessment (EA) report for an EA under CEAA 2012.

environmental assessment (EA) under CEAA 2012 *(évaluation environnementale [EE] en vertu de la LCEE 2012)*
An assessment of the environmental effects of a designated project that is conducted in accordance with [the *Canadian Environmental Assessment Act, 2012*]. (Source: *Canadian Environmental Assessment Act, 2012*))
Note: As further described in the *Practitioners Glossary for the Environmental Assessment of Designated Projects Under the* Canadian Environmental Assessment Act, 2012 [1], "An [environmental assessment (EA) under CEAA 2012] predicts the environmental effects of a designated project, identifies mitigation measures, assesses whether the designated project is likely to cause significant adverse environmental effects taking into account identified mitigation measures, and ensures a follow-up program is designated to verify the accuracy of the EA of the designated project and effectiveness of any mitigation measures." See also environmental assessment (EA) under the NSCA.

environmental assessment (EA) under the NSCA *(évaluation environnementale [EE] en vertu de la LSRN)*
A technical assessment by CNSC staff of information required under the *Nuclear Safety and Control Act* (NSCA) and the regulations made under the NSCA to inform and support the Commission's determination on whether the applicant or licensee will make adequate provision for the protection of the environment and the health and safety of persons while carrying on a licensed activity.
Note: The CNSC uses this type of EA to assess the potential environmental effects and health effects for all licence applications that demonstrate potential interactions between an activity/facility and the environment during the lifecycle of the activity/facility.
See also environmental assessment (EA) under CEAA 2012.

environmental control *(contrôle environnemental)*
Environmental management procedures or engineering technology and/or techniques that prevent or minimize the release of nuclear and hazardous substances to the environment.

environmental effects *(effets environnementaux)*
Any change to the environment, whether adverse or beneficial, wholly or partly resulting from a licensed activity or facility, including:

(a) any change that an activity, substance, equipment, facility or prescribed information may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*

(b) any effect of any change referred to in (a) on:

- health and socio-economic conditions
- physical and cultural heritage
- the current use of lands and resources for traditional purposes by Indigenous peoples
- any structure, site or thing that is of historical, archaeological, paleontological or architectural significance

whether any such change or effect occurs within or outside Canada
OR

With respect to an environmental assessment under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), the environmental effects described in section 5 [of that Act]. (Source: *Canadian Environmental Assessment Act, 2012*))

Note: Section 5 of CEAA 2012 describes environmental effects as follows:

(1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are

(a) a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:

(i) fish and fish habitat as defined in subsection 2(1) of the *Fisheries Act*,
(ii) aquatic species as defined in subsection 2(1) of the *Species at Risk Act*,
(iii) migratory birds as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*, and
(iv) any other component of the environment that is set out in Schedule 2;

(b) a change that may be caused to the environment that would occur

(i) on federal lands,
(ii) in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or
(iii) outside Canada; and

(c) with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on

(i) health and socio-economic conditions,
(ii) physical and cultural heritage,
(iii) the current use of lands and resources for traditional purposes, or
(iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

(2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:

(a) a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment and that is directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and

(b) an effect, other than those referred to in paragraph (1)(c), of any change referred to in paragraph (a) on

(i) health and socio-economic conditions,
(ii) physical and cultural heritage, or
(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

(3) The Governor in Council may, by order, amend Schedule 2 to add or remove a component of the environment.

environmental impact statement (EIS) *(étude d'impact environnemental (EIE)*
A detailed technical document prepared by the proponent of a designated project to be assessed pursuant to [the *Canadian Environmental Assessment Act, 2012*]. The environmental impact statement identifies the potential adverse environmental effects of a designated project including cumulative effects, measures to mitigate those effects, and an evaluation of whether the designated project is likely to cause any significant adverse environmental effects. (Source: *Practitioners Glossary for the Environmental Assessment of Designated Projects Under the* Canadian Environmental Assessment Act, 2012 [1])

environmental management system (EMS) *(système de gestion de l'environnement [SGE])*
The part of an organization's management system used to develop and implement its environmental policy and manage its environmental aspects. An EMS consists of policies and procedures forming an integrated set of documented activities to provide a framework for effective environmental protection measures.

environmental protection SCA *(DSR Protection de l'environnement)*
A safety and control area (SCA) that covers programs that identify, control and monitor all releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities. This SCA is one of the 14 within the CNSC SCA Framework.

environmental risk assessment (ERA) *(évaluation des risques environnementaux [ERE])*
A process that identifies, quantifies and characterizes the risk posed by contaminants (nuclear or hazardous substances) and physical stressors in the environment. An ERA is a practice or methodology primarily developed by regulatory agencies to provide scientific input to decision makers. In this way, ERAs commonly serve as a supportive tool providing technical information in a manageable form to a larger EA.

EO
See enabling objective.

EPREV *(EPREV)*
Emergency Preparedness Review (an IAEA service)

EPS *(AEU)*
emergency power supply

EQ *(QE)*
environmental qualification

equipment qualification *(qualification de l'équipement)*
The process for certifying equipment as having satisfied the requirements for operability under conditions relevant to its safety functions. Equipment qualification includes the generation and maintenance of evidence to ensure that equipment will operate on demand, under specified service conditions, to meet system performance requirements.

equivalent dose (H_T) *(dose équivalente [H_T])*
The product, in sievert, obtained by multiplying the absorbed dose of radiation of the type set out in column 1 of an item of Schedule 2 by the weighting factor set out in column 2 of that item.
(Sources: *Radiation Protection Regulations*; *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Note 1: Equivalent dose and effective dose are protection quantities used to reflect how radiation exposure can affect overall health of the human body. They specify dose values, which are derived from the body's absorbed dose, for limiting the occurrence of stochastic health effects below acceptable levels and avoiding tissue reactions. The equivalent dose (multiplying the radiation type by its radiation weighting factor) is designed to reflect the amount of harm caused, regardless of the type of radiation. Values (expressed in seiverts) of equivalent dose to a specified tissue or organ from any type(s) of radiation can be compared directly.

Note 2: The term weighting factor refers to the radiation weighting factor. The equivalent dose is the radiation-weighted dose in an organ or tissue. This value is based on the mean absorbed dose, $D_{T,R}$, due to radiation of type R and averaged over the volume of a specific organ or tissue T and is defined by:

$$H_T = \sum_R w_R D_{T,R}$$

Note 3: Use of absorbed dose alone is not valid for estimating risk, as radiation effects depend not only on the absorbed dose but also on a) the type of radiation, b) the distribution of energy absorption in time and space within the human body and c) the radiosensitivity of the exposed tissues or organs.

See also absorbed dose, effective dose.

equivalent full power hour (EFPH) *(heure équivalente pleine puissance [HEPP])*
The period over which a component sees service that equals the amount of full service the component would have experienced if it had been operated continuously over a full hour.

ERA *(ERE)*
See environmental risk assessment.

ERO *(OIU)*
See emergency response organization.

ESC *(CSU)*
emergency support centre

escort *(escorte)*
An individual (normally a staff member or a nuclear security officer) who is authorized by the Commission and licensee to enter the protected or inner area of a nuclear facility and who has been assigned to accompany persons granted escorted entry to the area by the licensee. The escort is expected to maintain control over the activity of the person(s) under escort at all times.
OR
Any person who accompanies a consignment of nuclear material to provide protection against compromise or attack.

ESWS *(SSUAE)*
emergency secondary water supply system

eV *(eV)*
See electron volt.

evaluator *(évaluateur)*
In an emergency exercise, a person who observes, evaluates and critiques the emergency responders' actions.

event *(événement)*
Any unintended occurrence, including operating error, equipment failure or another mishap, or deliberate action on the part of others, the consequences or potential consequences of which may be significant from the point of view of protection or safety.

event category *(catégorie d'événement)*
A group of events characterized by the same or similar cause and similarity in the governing phenomena.

event review *(examen d'événement)*
All verification activities related to reviewing, assessing and trending of event reports.

excavation site *(site d'excavation)*
A place at which uranium is moved by means of underground activities for the purpose of evaluating a potential ore body. (Source: *Uranium Mines and Mills Regulations*)

excepted package *(colis excepté)*
A package that is designed in accordance with the applicable requirements of the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

excessive radiation dose *(dose de rayonnement excessive)*
In a nuclear criticality accident, any dose to personnel corresponding to an absorbed dose from neutrons and gamma rays equal to or greater than 0.12 gray in free air.

excited state *(état excité)*
A state of energy of an electron or nucleus when its energy level is higher than in the ground state.

exclusion zone *(zone d'exclusion)*
A parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control. (Source: *Class I Nuclear Facilities Regulations*)

exclusive use *(utilisation exclusive)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

excretion function (m) *(fonction d'excrétion [m])*
A mathematical expression for the fractional excretion of a radionuclide from the body at any time following intake, generally expressed as becquerels excreted per day, per becquerel taken in.

exempted material *(matière exemptée)*
With respect to nuclear material accounting, any nuclear material that was initially classified as Group 1A and has been granted a temporary classification to Group 1B. The material remains classified as Group 1B until it is reclassified to Group 1A. Material may be exempted on the basis of non-nuclear use or by a quantity less than 1 effective kilogram.

exemption quantity *(quantité d'exemption)*
Any of the following:

(a) in respect of a radioactive nuclear substance set out in column 1 of Schedule 1,
  (i) if the radioactive nuclear substance is uniformly distributed in material and not in bulk quantity, the corresponding activity concentration set out in column 2, or
  (ii) the corresponding activity set out in column 3;
(b) in respect of a radioactive nuclear substance that is not set out in column 1 of Schedule 1,
  (i) if the atomic number of the substance is equal to or less than 81,
    (A) 10 Bq/g if the radioactive nuclear substance is uniformly distributed in material and not in bulk quantity, or
    (B) 10,000 Bq,
  (ii) if the atomic number of the substance is greater than 81 and the substance, or its short-lived radioactive progeny, does not emit alpha radiation,
    (A) 10 Bq/g if the radioactive nuclear substance is uniformly distributed in material and not in bulk quantity, or
    (B) 10,000 Bq, or
  (iii) if the atomic number of the substance is greater than 81 and the substance, or its short-lived radioactive progeny, emits alpha radiation,
    (A) 1 Bq/g if the radioactive nuclear substance is uniformly distributed in material and not in bulk quantity, or
    (B) 1,000 Bq; or
(c) in respect of more than one radioactive nuclear substance,
  (i) if the radioactive nuclear substances are uniformly distributed in material and not in bulk quantity, the quotient obtained by dividing the total activity concentration by the sum of quotients obtained by dividing the activity concentration of each radioactive nuclear substance by its corresponding exemption quantity as referred to in paragraph (a) or (b), or
  (ii) the quotient obtained by dividing the total activity by the corresponding sum of quotients obtained by dividing the activity of each radioactive nuclear substance by its corresponding exemption quantity as referred to in paragraph (a) or (b).

(Source: *Nuclear Substances and Radiation Devices Regulations*)

Note: Bq/g means becquerels/gram.

exempt material *(matière exemptée)*
With respect to the packaging and transport of a nuclear substance, a nuclear substance having an activity concentration that does not exceed the values for an exempt material specified in paragraphs 401 to 406 of the IAEA Regulations.

exercise *(exercice)*
See emergency exercise.

explosive substance *(substance explosive)*
Includes:
(a) anything intended to be used to make a substance capable of producing an explosion, a detonation or a pyrotechnic effect;
(b) anything, or any part of any thing, used or intended to be used or adapted to cause, or to aid in causing, an explosion in or with a substance referred to in paragraph (a); and
(c) an incendiary grenade, firebomb, Molotov cocktail or other similar incendiary substance or device and a delaying mechanism or other thing intended for use in connection with such a substance or device.
(Source: *Nuclear Security Regulations***)**

export *(exportation)*
The transfer of a nuclear substance, prescribed equipment or prescribed information from Canada to a foreign destination.

exposure *(exposition)*
See irradiation.

exposure container (radiography camera) *(projecteur [caméra de gammagraphie])*
A shield, in the form of a container, designed to allow the controlled use of gamma radiation and employing a sealed source assembly.

exposure device *(appareil d'exposition)*
A radiation device that is designed for carrying out gamma radiography, and includes any accessory to the device such as a sealed source assembly, a drive mechanism, a sealed source assembly guide tube and an exposure head. **(Sources:** *Nuclear Substances and Radiation Devices Regulations*; *Packaging and Transport of Nuclear Substances Regulations, 2015***)**

exposure device source path *(organe de transmission de la source de l'appareil d'exposition)*
A hollow tunnel inside an exposure container where the sealed source resides when not in use. Also called S-tube.

exposure head *(tête d'exposition)*
A device that locates the sealed source included in the sealed source assembly, in the selected working position, and prevents the sealed source assembly from projecting out of the projection sheath. A beam limiter may also serve as an exposure head. Also called source stop.

exposure hours *(heures d'exposition)*
The total number of hours of employment of all employees for each member utility for each reporting period. **Note:** Employees include regular hires and direct contractors / augmented / supplemented staff. Contractors working through a separate company are not counted.

extended loss of AC power event *(perte prolongée d'alimentation en CA)*
See station blackout.

extended shutdown *(arrêt prolongé)*
A reactor shutdown lasting longer than planned.

external dosimetry *(dosimétrie externe)*
See dosimetry types.

external event *(événement externe)*
An event, unconnected with the operation of a facility or conduct of an activity, that could have an effect on the safety of the facility or activity. Some examples are earthquakes, floods, hurricanes, explosions and airplane crashes.

external hazard *(danger externe)*
An event of natural or human-induced origin that originates outside a site and whose effects on the facility are considered as potentially hazardous.

external worker *(travailleur externe)*
A person, employed by a firm or organization other than the licensee, who performs work that is referred to in a licence.

extremities *(extrémités)*
Each part of the human body that is furthest from the head and torso, and that shares similar sensitivities to ionizing radiation. The extremities are further defined as each part of the anatomy from and including the elbows to the tips of the fingers (the upper extremities) and from and including the knees to the tips of the toes (the lower extremities).

F

facility *(installation)*
See nuclear facility.

facility and equipment *(installation et équipement)*
A functional area that groups 3 of the 14 safety and control areas (SCAs) within the CNSC SCA Framework: safety analysis, physical design, and fitness for service. Other functional areas are "core control processes" and "management".

FAI *(MPF)*
Fukushima action item

fail-safe *(à sûreté intégrée)*
The ability of a system or component to move to a predetermined safe state when a failure occurs.

fail-safe design *(conception à sûreté intégrée)*
A design whose most probable failure modes do not result in a reduction of safety.

failure *(défaillance)*
The inability or interruption of the ability of a structure, system or component to function within acceptance criteria. Also called fault.

failure criterion *(critère de défaillance)*
The measure point at which a structure, system or component is considered unable to meet its success criterion.

failure diagnosis *(diagnostic de défaillance)*
A structured process for determining the cause(s) of failure of a structure, system or component.

fast loss of reactivity control (FLORC) *(perte rapide de contrôle de la réactivité [PRCR])*
The loss of a nuclear reactor's designed ability to measure, control and maintain reactivity by quickly inserting or removing reactivity devices. Only loss of reactivity control accidents that result in reactor power increase pose a safety concern.

fatality *(décès)*
Any death resulting from an injury or illness regardless of time intervening between the injury or illness and death. **Note:** With respect to reporting requirements, fatalities will be reported but no days will be charged to the event.

fault *(défaut)*
A rock fracture that has slipped, grinding or polishing the fractured surface. Faults are classified according to the direction of slippage.
OR
With respect to nuclear facilities, a synonym for failure. See failure.

federal authority *(autorité fédérale)*
(a) a Minister of the Crown in right of Canada;
(b) an agency of the Government of Canada or a parent Crown corporation, as defined in subsection 83(1) of the *Financial Administration Act*, or any other body established under an Act of Parliament that is ultimately accountable through a Minister of the Crown in right of Canada to Parliament for the conduct of its affairs;
(c) any department or departmental corporation that is set out in Schedule I or II to the *Financial Administration Act*;
(d) any other body that is set out in Schedule 1 to the *Canadian Environmental Assessment Act, 2012*; and
(e) the Executive Council of – or a minister, department, agency or body of the government of – Yukon, the Northwest Territories or Nunavut.
It does not include a council of the band within the meaning of the *Indian Act*, Export Development Canada or the Canada Pension Plan Investment Board. It also does not include a Crown corporation that is a wholly-owned subsidiary, as defined in subsection 83(1) of the *Financial Administration Act*, a harbour commission established under the *Harbour Commissions Act* or a not-for-profit corporation that enters into an agreement under subsection 80(5) of the *Canada Marine Act*, that is not set out in Schedule 1 of the *Canadian Environmental Assessment Act, 2012*.
(Sources: *Class I Nuclear Facilities Regulations*; *Uranium Mines and Mills Regulations*)

feeder *(tuyau d'alimentation)*
In a CANDU reactor, one of a set of pipes attached to each end of the several hundred channels used to circulate heavy water coolant from fuel channels to steam generators.

fee period *(période d'application des droits)*
The 12-month period beginning on the date of issuance of a licence and, after that date, beginning on each anniversary date of the licence. (Source: *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*)

FERP *(PFIU)*
Federal Emergency Response Plan

fertile material *(matière fertile)*
Nuclear material that can be converted into a special fissionable material through the capture of one neutron per nucleus. There are two naturally occurring fertile materials: uranium-238 and thorium-232. Through the capture of neutrons followed by two beta decays, these fertile materials are converted to fissionable plutonium-239 and uranium-233, respectively.

financial guarantee *(garantie financière)*
The establishment and maintenance of a financial arrangement that will assure adequate funding of a decommissioning program.

finding *(constatation)*
A conclusion that results from the evaluation of facts collected during an inspection against inspection criteria. A finding can indicate either compliance or non-compliance with inspection criteria.

fire *(incendie)*
A process of combustion characterized by heat emission and accompanied by smoke or flame, or both.

First Nations *(autochtones)*
See Aboriginal peoples of Canada ***or*** Indigenous peoples.

fiscal year (FY) *(exercice)*
The period beginning on April 1 in one calendar year and ending on March 31 in the next calendar year. **(Source:** *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations***)**

fissile assembly *(assemblage fissile)*
A system consisting of fissile material and other components that significantly influence reactivity. Also called assembly.

fissile-excepted radioactive material *(matière radioactive fissile exceptée)*
Fissile radioactive material that is
(a) excepted from being classified as fissile in accordance with the IAEA Regulations; or
(b) contained in a package that is excepted from being classified as fissile in accordance with those Regulations.
(Source: *Packaging and Transport of Nuclear Substances Regulations, 2015***)**

fissile isotope *(isotope fissile)*
Plutonium, uranium-235 or uranium-233.

fissile material *(matière fissile)*
Has the same meaning as in the IAEA Regulations. **(Source:** *Packaging and Transport of Nuclear Substances Regulations, 2015***)**
Note: This definition is restricted to packaging and transport of nuclear substances.

fissile nuclide *(nucléide fissile)*
A nuclide capable of undergoing fission by interaction with slow neutrons provided the effective thermal neutron production cross-section, $\upsilon\sigma_f$, exceeds the effective thermal neutron absorption cross-section σ_a.

fissionable *(fissionnable)*
Capable of undergoing fission.

fissionable material *(matière fissionnable)*
Any material that can undergo nuclear fission.

fitness for service SCA *(DSR Aptitude fonctionnelle)*
A safety and control area (SCA) that covers activities that impact the physical condition of structures, systems and components to ensure that they remain effective over time. This includes programs that ensure all equipment is available to perform its intended design function when called upon to do so. This SCA is one of the 14 within the CNSC SCA Framework.

five-year dosimetry period *(période de dosimétrie de cinq ans)*
The period of five calendar years beginning on January 1 of the year following the year in which these Regulations come into force, and every period of five calendar years after that period. (Source: *Radiation Protection Regulations*)
Note: These periods cover 2001–05, 2006–10, 2011–15 and 2016–20.

fixed gauge *(jauge fixe)*
See fixed nuclear gauge.

fixed moderator *(modérateur fixe)*
A moderator with an established geometric relationship to the locations occupied by the fixed neutron absorber and fissionable material.

fixed neutron absorbers *(absorbeurs de neutrons fixe)*
Neutron absorbers in solids with an established geometric relationship to the locations occupied by fissionable material.

fixed nuclear gauge *(jauge nucléaire fixe)*
A radiation device that is attached to a structure and enables the nuclear substance contained in it to be used for its radiation properties to measure process-related parameters (such as liquid flow or liquid level).

FLORC *(PRCR)*
See fast loss of reactivity control.

FNEP *(PFUN)*
Federal Nuclear Emergency Plan

focused inspection *(inspection ciblée)*
A special Type I or Type II inspection conducted as a regulatory follow-up in response to an event, inspection findings or a licensee's performance.

for cause *(pour un motif valable)*
A threshold for action (interview, further checks, denial, revocation, suspension).
OR
In the context of a security assessment, a determination that more in-depth verifications are required due to gaps in information or information that could not be verified.
OR
A determination by the licensee that sufficient evidence exists regarding an unreasonable security risk to the licensed site, including its operation and personnel, or a threat with national security implications.

forced outage *(arrêt imprévu)*
A reactor shutdown resulting in an outage that had not been identified in the licensee's long-term plan or that is not due to a surplus baseload generation request.

foreign national *(ressortissant étranger)*
A person who is not a Canadian citizen or a permanent resident of Canada.

foreign obligations *(obligations à l'étranger)*
See obligations.

freight container *(conteneur)*
Has the same meaning as in the *International Maritime Dangerous Goods Code*. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

frequented by fish *(eaux où vivent des poissons)*
See water frequented by fish.

fuel bay *(piscine de combustible)*
See wet storage bay.

fuel burnup *(combustion nucléaire)*
The induced nuclear transformation of atoms during reactor operation, usually measured as energy generated in the fuel during its residence in the reactor core per unit mass of fuel (such as gigawatt-days per tonne of uranium). Also called burnup.

fuel cooling system *(système de refroidissement du combustible)*
With respect to reactor buildings, any cooling system whose failure has the potential to release radioactive material in excess of established limits.

fuel deformation *(déformation du combustible)*
A change in the geometry of a fuel bundle caused by deformation of one or more elements in the bundle or of the whole bundle.

fuel failure *(défaillance du combustible)*
Any rupture of a fuel sheath such that fission products may be released.

fuel rod *(barre de combustible)*
A long slender column of material containing fissile nuclides. The rod is normally encapsulated by metallic tubing.

fuel sheath dryout *(assèchement de la gaine de combustible)*
With respect to heat transfer in a reactor core, the formation of a vapour blanket over the fuel sheath during some accident conditions when the liquid coolant, which flows over the fuel during normal operation to cool the fuel, boils off.

fuel unit *(unité de combustible)*
The fundamental item for handling, storing or transporting fuel. The fuel unit may be an assembly of fuel rods, canned spent fuel, or consolidated fuel rods.

full cost *(coût entier)*
The sum of the costs of the Commission's direct regulatory activities and indirect regulatory activities, including salaries and benefits, rental of office accommodation, supplies and equipment, professional services, communications, travel and training. (Source: *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*)

full scope simulator *(simulateur pleine échelle)*
A simulator that can perform detailed modelling of the response of the systems of a given nuclear power plant (NPP) under normal, abnormal and accident conditions. The simulator is equipped with a replica of the NPP main control room panels where operators can interface with the simulated plant systems in the control room environment.

functional indicator *(indicateur du fonctionnement)*
A condition indicator that directly shows the current ability of a structure, system or component to function within acceptance criteria.

function testing *(essai de fonctionnement)*
Testing done to verify that a structure, system or component is capable of performing its design function.

Fussell-Vesely (FV) importance *(mesure d'importance de Fussell-Vesely [FV])*
See importance measures.

FV *(FV)*
Fussell-Vesely. See importance measures.

FY *(exerice)*
See fiscal year.

G

GAI *(DG)*
See generic action item.

gamma radiation *(rayonnement gamma)*
Penetrating electromagnetic radiation emitted from an atom's nucleus. Also called gamma rays.

gamma radiography *(gammagraphie)*
See industrial radiography.

gamma rays *(rayons gamma)*
See gamma radiation.

GAR *(REG)*
global assessment report; see global assessment

GBq *(GBq)*
gigabecquerel, that is, 10^9 becquerels; see becquerel.

general public *(population en général)*
Any person who is not designated as a nuclear energy worker.

generic action item (GAI) *(dossier générique [DG])*
A mechanism to track safety issues, where the issues are generic to the class of facilities and have been singled out by the Commission as requiring corrective action by the licensee within a reasonable time frame.

geophysical well logging *(diagraphie géophysique des puits de pétrole)*
A neutron generator used in a borehole to measure the various geophysical properties of subsurface rock formations.

gigabecquerel *(gigabecquerel)*
10^9 becquerels; see becquerel.

glass volume fraction *(fraction du volume de verre)*
With respect to nuclear criticality safety, the fraction of the interior volume of a Raschig ring-filled vessel that is occupied by the glass in the rings.

global assessment *(évaluation globale)*
An overall risk judgment on the acceptability of continued operation of a nuclear facility.

graded approach *(méthode graduelle)*
A method or process by which elements such as the level of analysis, the depth of documentation and the scope of actions necessary to comply with requirements are commensurate with:

- the relative risks to health, safety, security, the environment and the implementation of international obligations to which Canada has agreed
- the particular characteristics of a nuclear facility or licensed activity

graduated use of force *(recours progressif à la force)*
The application of approved response force options following the RCMP incident management/intervention model or approved equivalent provincial police model.

gray (Gy) *(gray [Gy])*
The International System of Units (SI) unit of measurement used to express absorbed dose. One gray is defined as the absorption of 1 joule of ionizing radiation by 1 kilogram of matter. For gamma and beta radiations, the gray is numerically equal to the sievert.

ground state *(état fondamental)*
The lowest-energy and most-stable state of an electron.

Group 1 nuclear material *(matières nucléaires du Groupe 1)*
See safeguarded nuclear material.

GSS *(EAG)*
See guaranteed shutdown state.

guaranteed shutdown state (GSS) *(état d'arrêt garanti [EAG])*
A reactor state with sufficient negative reactivity to ensure subcriticality in the event of any process failure and for which administrative safeguards (that is, reactor shutdown guarantees), approved by the senior operations authority and with which the CNSC concurs, are in place to prevent net removal of negative reactivity. See also safe shutdown state, shutdown state.

guide tube *(tube de guidage)*
See projection sheath.

guide tube connector *(raccord du tube de guidage)*
See projection sheath connector.

GWD *(GWj)*
gigawatt-days

Gy *(Gy)*
See gray.

H

HAC *(conditions d'accident hypothétique)*
hypothetical accident conditions

half-life *(période de demi-vie)*
For a radionuclide, the time required for the activity to decrease, by a radioactive decay process, by half.
Note: Half-lives vary from a fraction of a second to billions of years. For example, the half-lives of cobalt-60 and of iridium-192 are 5.3 years and 74.2 days, respectively.

half-value layer (HVL) *(couche de demi-atténuation [CDA])*
The thickness of a shield or absorber (such as uranium, tungsten or lead) that reduces the amount of radiation to one half of its initial intensity. Also called half-value thickness.

half-value thickness (HVT) *(épaisseur de demi-atténuation)*
See half-value layer.

handheld tool *(outils portatifs)*
A portable tool. Some handheld tools, in the context of nuclear security, may be used by an adversary to penetrate a security system or barrier. Some examples of handheld tools are bolt cutters, pliers or hacksaw blades, power tools, burn bars and cutting torches.

hazard analysis *(analyse des dangers)*
The process used to systematically identify and assess hazards to evaluate the potential internal, external, human-made and natural events that can cause the identified hazards to initiate faults that develop into accidents.

hazardous substance *(substance dangereuse)*
A substance, other than a nuclear substance, that is used or produced in the course of carrying on a licensed activity and that may pose a risk to the environment or the health and safety of persons.
(Sources: *Class II Nuclear Facilities and Prescribed Equipment Regulations*; *Uranium Mines and Mills Regulations*)

hazardous substance *or* hazardous waste *(substance dangereuse ou déchet dangereux)*
A substance or waste, other than a nuclear substance, that is used or produced in the course of carrying on a licensed activity and that may pose a risk to the environment or the health and safety of persons.
(Sources: *General Nuclear Safety and Control Regulations*; *Class I Nuclear Facilities Regulations*)

HCLPF *(faible probabilité de défaillance avec niveau de confiance élevé [HCLPF])*
high confidence of low probability of failure

HDR *(HDD)*
See high dose rate (HDR) brachytherapy remote afterloader.

head leakage *(fuite de la tête de source)*
All radiation coming from within teletherapy source housing or accelerator target housing, other than the primary beam.

heat sink *(source froide)*
A system or component that provides a path for heat transfer from a source, such as heat generated in the fuel, to a large heat-absorbing medium, such as water. See also ultimate heat sink.

heat transport system (HTS) *(circuit caloporteur)*
See primary heat transport system.

heatup rate *(taux de chauffe)*
The rate at which the temperature of an object increases when heated.

HEU *(UHE)*
See high-enriched uranium.

HEUNL *(NULHE)*
See highly enriched uranyl nitrate liquid.

HF *(FH)*
See human factors.

HFE *(IFH)*
human factors engineering; see human factors in design

high dose rate (HDR) brachytherapy remote afterloader *(appareil de curiethérapie à projecteur de source télécommandé à débit de dose élevé)*
A brachytherapy machine that uses a sealed source activity that, if exposed, will produce a dose rate in air of 10 milligrays per hour or greater at a distance of 1 metre from the source(s).

high-enriched uranium (HEU) *(uranium hautement enrichi [UHE])*
Uranium containing 20 percent or more by weight of isotope uranium-235, isotope uranium-233, or combined uranium-233 and uranium-235. Also called highly enriched uranium.

highly enriched uranyl nitrate liquid (HEUNL) *(nitrate d'uranyle liquide hautement enrichi [NULHE])*
Liquid containing high-enriched uranium.

high-security site *(site à sécurité élevée)*
A nuclear power plant or a nuclear facility where Category I or II nuclear material is processed, used or stored. (Source: *Nuclear Security Regulations*)

holding account *(compte de dépôt)*
A holding area at an identified foreign facility to which unallocated Canadian-origin nuclear material can be exported and temporarily held pending the conclusion of a commercial arrangement for nuclear material held in the account.

HOP *(RHO)*
human and organizational performance

house load operation *(fonctionnement en îlotage)*
Operation of a nuclear power plant that is isolated from the grid and is supplying power only to its own auxiliary electric loads. Also called island load; island operation.

H_T *(H_T)*
See equivalent dose.

HTO *(HTO)*
hydrogenated tritium oxide; also called tritiated water

HTS
See primary heat transport system.

human error *(erreur humaine)*
Inappropriate or inadequate human action, including failure to take action when required, which can arise from problems in sequencing, timing, knowledge, interfaces, procedures and other sources.

human factors (HF) *(facteurs humains [FH])*
Factors that influence human performance as it relates to the safety of a nuclear facility or activities over all phases, including design, construction, commissioning, operation, maintenance and decommissioning. Some examples are organizational and management structures; policies and programs; allocation of functions to humans and machines; the design of user interfaces; staffing provisions; job-design features; work schedules; design of procedures; training; and the physical work environment.

human factors engineering (HFE) *(ingénierie des facteurs humains)*
See human factors in design.

human factors in design *(facteurs humains dans la conception)*
The application of knowledge about human capabilities and limitations to a plant, facility, system or equipment design. Human factors in design ensure that the plant, facility, system or equipment design, human tasks and work environment, are compatible with the sensory, perceptual, cognitive and physical attributes of the personnel who operate, maintain and support it. Also called human factors engineering.

human performance *(performance humaine)*
The outcomes of human behaviours, functions and actions, in a specified environment, that reflect the ability of workers and management to meet a system's defined performance under the conditions in which the system will be employed.

human performance management SCA *(DSR Gestion de la performance humaine)*
A safety and control area (SCA) that covers activities that enable effective human performance through the development and implementation of processes that ensure a sufficient number of licensee personnel are in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties. This SCA is one of the 14 within the CNSC SCA Framework.

human research study *(étude sur des êtres humains)*
The administration of unsealed sources (nuclear substances) to, or external irradiation of, humans for purposes not related to their personal healthcare; includes processing of radiopharmaceuticals and laboratory studies that are part of the human research study.

HVL *(CDA)*
See half-value layer.

HVT *(CDA)*
half-value thickness; see half-value layer

H/X *(H/X)*
hydrogen-to-fissile atomic ratio

I

I *(I)*
The activity, in becquerel, of any radionuclide that is taken into the body, excluding the radon progeny and the activity of other radionuclides accounted for in the determination of E. (Source: *Radiation Protection Regulations*)
Note: E is the effective dose.

IAEA *(AIEA)*
See International Atomic Energy Agency.

IAEA Agreement *(Accord avec l'AIEA)*
The *Agreement between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-proliferation of Nuclear Weapons*, effective on February 21, 1972; INFCIRC/164; UNTS vol. 814, R. No. 11596. (Sources: *General Nuclear Safety and Control Regulations*; *Class I Nuclear Facilities Regulations*)

IAEA Regulations *(Règlement de l'AIEA)*
The *Regulations for the Safe Transport of Radioactive Material*, published by the IAEA, as amended from time to time. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

I&C *(IC)*
instrumentation and control

ICAO *(OACI)*
International Civil Aviation Organization

ICRP *(CIPR)*
See International Commission on Radiological Protection.

ICRU *(CIUMR)*
International Commission on Radiation Units and Measurements

IEMP *(PISE)*
See Independent Environmental Monitoring Program.

IFB *(piscine de stockage du combustible usé)*
irradiated fuel bay; see wet storage bay

IIP *(PIMO)*
See integrated implementation plan.

IL *(NE)*
See investigational level.

immediate evacuation zone *(zone d'évacuation immédiate)*
With respect to nuclear criticality safety, the area surrounding a potential criticality accident location that must be evacuated without hesitation if a criticality accident alarm signal is activated.

immediate rapid deployment (IRD) *(déploiement rapide immédiat [DRI])*
With respect to security, the start of an immediate pursuit to make direct contact with an active threat as soon as possible, so as to stop the threat by containment, physical arrest or by use of the appropriate level of force.

impairment *(déficience)*
With respect to nuclear power plants' safety-related systems, a failure such that a safety-related system would operate with reduced redundancy or margin of safety, or would fail to meet its design intent. Level 1 impairment describes a system state that is impaired to the extent that it would provide inadequate protection. Level 2 impairment describes a system state that is impaired to the extent that it would provide some, but not complete, protection for a worst-case process failure. Level 3 impairment describes a system state where the level of redundancy or margin of safety is reduced but the system is still fully capable of meeting its design intent.

import *(importation)*
The transfer of a nuclear substance, prescribed equipment or prescribed information into Canada from a foreign location.

importance measures *(mesures d'importance)*
With respect to probabilistic safety assessments (PSAs), indices on the importance of an event or group of events, comprising:

- **Fussell-Vesely importance:** for a specific basic event, the fractional contribution to PSA results for all accident sequences containing that basic event
- **risk increase ratio (RIR)**, also called **risk achievement worth (RAW):** the factor by which the PSA results would increase if the basic event is assumed to happen with certainty (failure probability = 1.0)
- **risk decrease ratio (RDR)**, also called **risk reduction worth (RRW):** the amount of reduction in the PSA results to be gained if the basic event is assumed to be available (failure probability = 0.0)

IMRT *(RCMI)*
intensity modulated radiation therapy

incident *(incident)*
See event.

incipient failure *(début de la défaillance)*
A condition of a component that, if left unremedied, could ultimately lead to a degraded or unavailable component state.

Independent Environmental Monitoring Program (IEMP) (*Programme indépendant de surveillance environnementale (PISE)*)
A CNSC program that complements CNSC staff reviews and approvals of licensees' environmental monitoring programs and confirms that the public and environment around CNSC-regulated nuclear facilities are not adversely affected by radiological (nuclear) and non-radiological (hazardous) substances released to the environment from the facilities.
Note: CNSC staff sample air, water, soil, sediment, vegetation (such as grass) and foodstuffs (such as meat and produce) in public areas outside but in the vicinity of a selected facility. They then analyze the samples and compare contamination levels to federal and/or provincial guidelines to confirm that the public and the environment in the vicinity are safe and there are no health effects as a result of facility operations. Some examples of facilities where IEMP occurs include uranium mines and mills, processing facilities, nuclear power plants, research reactors and waste management facilities.

independent system *(système indépendant)*
A system capable of performing its required function while remaining unaffected by the operation or failure of another system.

Indian *(Indien)*
See Aboriginal peoples of Canada.

indictable conviction *(condamnation pour acte criminel)*
A category of conviction under Canada's *Criminal Code* reserved for more serious offences such as murder, acts of terrorism, robbery, drug trafficking, treason and certain types of sexual assaults.

Indigenous peoples *(autochtones)*
Includes the First Nations, Inuit and Métis people of Canada. See also Aboriginal peoples of Canada.

indirect (*in vitro*) radiobioassay *(essai biologique indirect [mesures in vitro])*
See bioassay.

indirect bioassay *(essai biologique indirect)*
See bioassay.

indirect effect *(effet indirect)*
A secondary environmental effect that occurs as a result of a change that a project may cause in the environment. An indirect effect is at least one step removed from a project activity in terms of cause–effect linkages.

indirect regulatory activities *(activités de réglementation indirectes)*
Those activities that are in support of direct regulatory activities, such as management, training, administration, human resources, finance, information technology services and the preparation of documents, including policies, standards, guides, procedures and notices. (Source: *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*)

industrial or research accelerator *(accélérateur industriel ou de recherche)*
A particle accelerator that is used solely for industrial or research purposes. **Note:** In instances where research is to be conducted using an accelerator that is primarily being used for other applications, the accelerator should be licensed according to its primary intended use.

industrial radiography *(gammagraphie industrielle)*
The use of certified exposure devices to conduct the non-destructive examination of the structure of welds, castings and building components. Also called gamma radiography.

industrial safety accident rate (ISAR) *(taux d'accident de travail)*
A measure of the number of lost-time injuries for a defined number of hours worked. See also lost-time injury.
Note: In the Canadian nuclear power industry, the defined number is 200,000 hours worked by nuclear power plant personnel.

INES *(INES)*
See International Nuclear and Radiological Event Scale.

INFCIRC *(INFCIRC)*
Information Circular (IAEA publication)

initial conditions *(conditions initiales)*
The values of variables in a mathematical model that are assumed at the beginning of the time period considered in the model.

initiating event *(événement initiateur)*
An event that initiates a sequence of events that could lead to a severe accident in the absence of action by a system important to safety, or an event involving a system important to safety that initiates a sequence of events that could have led to a severe accident if other systems important to safety had not functioned. See also postulated initiating event.

initiating parameter *(paramètre initiateur)*
The physical property being measured or monitored by the triggering device for a special safety system or its subsystems.

inner area *(zone intérieure)*
An area inside a protected area that is surrounded by a barrier or structure that meets the requirements of section 13. (Source: *Nuclear Security Regulations*)

inner maze entrance *(entrée du labyrinthe interne)*
The point at which the entrance maze merges with the treatment room containing Class II prescribed equipment.

INPO *(INPO)*
See Institute of Nuclear Power Operations.

in-service inspection (ISI) *(inspection en service)*
Non-destructive examination of structures, systems and/or components, performed to provide information about their current condition and identify any damage, defect or degradation that may have occurred. See also periodic inspection.

in-service verification *(vérification en service)*
With respect to nuclear criticality safety, periodic verification of the integrity of a neutron absorber system subsequent to installation.

insider threat *(menace interne)*
An individual with authorized access to a nuclear facility or a means of transportation, who might attempt unauthorized removal or sabotage, or who could aid outsiders to do so.

***in situ* experiment** *(expérience in situ)*
Neutron multiplication or other nuclear reactivity-determining measurement on a subcritical fissile assembly where protection of personnel against the consequences of a criticality accident is not provided. This definition applies to nuclear criticality safety.

inspection *(inspection)*
For maintenance purposes, an examination, observation, measurement or test undertaken to assess the condition of a structure, system or component.

OR

The process by which CNSC inspectors gather data at the site of a licensed activity and analyze that data, to evaluate whether a licensee is in compliance with the requirements of the regulatory framework.
Note: The Commission may designate non-CNSC persons as inspectors; IAEA inspection teams may also participate in this process.

inspector *(inspecteur)*
A person designated as an inspector under section 29. **(**Source: *Nuclear Safety and Control Act***)**
Note: Inspectors lead inspections of licensed activities. An inspector may be a CNSC employee or a person otherwise employed under an arrangement with the CNSC.

install *(installer [montage/démontage])*
Mount and dismount a radiation device into its measuring position within a location authorized by a licence (part of the licensed activity of servicing, installation and dismantling of devices containing radioisotopes).

Institute of Nuclear Power Operations (INPO) *(Institute of Nuclear Power Operations [INPO])*
A not-for-profit organization with the stated mission of promoting the highest levels of safety and reliability in the operation of commercial nuclear power plants. INPO was established by the nuclear power industry in 1979.

institutional controls *(contrôles institutionnels)*
The control of residual risks at a site after it has been decommissioned. Institutional controls can include active measures (those requiring activities on the site such as water treatment, monitoring, surveillance and maintenance) and passive measures (those not requiring activities on the site, such as land use restrictions or markers).

instruction *(instruction)*
See training.

instructional program *(programme d'enseignement)*
See training program.

instructional strategy *(stratégie d'enseignement)*
The combination of media, methods and environment used in the delivery of training:

- **method:** the type of learning activity or instructional event
- **media:** the means of delivering instructional activities to the trainee, such as computers or printed texts
- **environment:** the learning activity's location, such as a classroom, workplace or home

instrument or article *(appareils ou objets)*
Any tool, implement or object, or its components, that encloses nuclear substances and that is fabricated for a particular use other than solely for enclosing those nuclear substances. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

intake *(incorporation)*
The amount of a radionuclide, measured in becquerels, taken into a body by inhalation, absorption through the skin, injection or ingestion, or through wounds.

integrated implementation plan (IIP) *(plan intégré de mise en œuvre [PIMO])*
A plan that considers the scope and schedule of safety improvements to support continued operation of a facility, based on the results of a periodic safety review.

intermediate bulk container (IBC) *(grand récipient pour vrac [GRV])*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: In the IAEA Regulations, an intermediate bulk container means a portable packaging that has a capacity of not more than 3 m^3; is designed for mechanical handling; and is resistant to the stresses produced in handling and transport, as determined by tests.

intermediate-level waste *(déchet de moyenne activité)*
Radioactive solid waste that typically exhibits levels of penetrating radiation sufficient to require shielding during handling and interim storage.

internal dosimetry *(dosimétrie interne)*
See dosimetry types.

internal event *(événement interne)*
Any event that proceeds from a human error or from a failure of a structure, system or component.

internal hazard *(danger interne)*
A hazard that originates from the sources located on the site of a nuclear facility (both inside and outside facility buildings). Some examples of internal hazards are internal fires, internal floods, turbine missiles, onsite transportation accidents and releases of toxic substances from onsite storage facilities.

International Atomic Energy Agency (IAEA) *(Agence internationale de l'énergie atomique [AIEA])*
An independent international organization related to the United Nations system. The IAEA works with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies. The IAEA reports annually to the UN General Assembly and, when appropriate, to the Security Council regarding non-compliance by States with respect to their safeguards obligations, as well as on matters relating to international peace and security.

International Commission on Radiological Protection (ICRP) *(Commission internationale de protection radiologique)*
The international organization that has developed standards and concepts for ionizing radiation protection.

International Maritime Dangerous Goods Code *(Code maritime international des marchandises dangereuses)*
The document of that name published by the International Maritime Organization, as amended from time to time. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

International Nuclear and Radiological Event Scale (INES) *(Échelle internationale des événements nucléaires et radiologiques [INES])*
A seven-point scale used to promptly and consistently classify nuclear events into safety-significant ratings.

International Reporting System for Operating Experience (IRS) *(Système international de notification des incidents [IRS])*
A platform for the collection, processing and effective dissemination of construction, operating and decommissioning experience information among regulators in IAEA Member States.

intervenor *(intervenant)*
A person who is permitted to intervene at a public hearing under rule 19. (Source: *Canadian Nuclear Safety Commission Rules of Procedure*).

Note: The intervenor is a person who has an interest, expertise or information useful to the Commission in coming to a decision.

interviewer *(intervieweur)*
With respect to security, a qualified person, representing a licensee, who conducts investigations and/or security interviews to gather information from an applicant for, or holder of, site access security clearance (SASC), for the purpose of granting, renewing, denying or revoking the SASC.

Inuit *(Inuit)*
See Aboriginal peoples of Canada *or* Indigenous peoples.

inventory change *(variation de stock)*
An increase or decrease of nuclear material, in terms of batches, in a material balance area.

inventory difference *(différence d'inventaire)*
With respect to nuclear material accounting, the difference between book-adjusted inventory and the physical inventory as reported in the reconciliation statement. Also called material unaccounted for.

investigational level (IL) *(niveau d'enquête [NE])*
An indicator of intake (in becquerels) of a radioactive substance that requires special monitoring of a worker. Typically the level is expressed as a fraction of the annual limit on intake.

***in vitro* bioassay** *(essai biologique in vitro)*
See bioassay.

***in vivo* bioassay** *(essai biologique direct [mesures in vivo])*
See bioassay.

ion exchange process *(procédé d'échange d'ions)*
A usually reversible exchange of one ion with another, either on a solid surface or within a lattice. Ion exchange is a commonly used method for treating liquid waste.

ionizing radiation *(rayonnement ionisant)*
For the purposes of radiation protection, radiation capable of producing ion pairs in biological material(s). **Note:** Ionizing radiation is constantly present in the environment and includes the radiation that comes from both natural and artificial sources, such as cosmic rays, terrestrial sources (radioactive elements in the soil), ambient air (radon), and internal sources (food and drink).

IP-1 package *(colis CI-1)*
See Type IP-1.

IP-2 package *(colis CI-2)*
See Type IP-2.

IP-3 package *(colis CI-3)*
See Type IP-3.

IPPAS *(SCIPP)*
International Physical Protection Advisory Service

IRD *(DRI)*
See immediate rapid deployment.

irradiated fuel bay *(piscine de combustible usé)*
See wet storage bay.

irradiated nuclear fuel *(combustible nucléaire irradié)*
See used nuclear fuel.

irradiation *(irradiation)*
Exposure to radiation. **Note:** "exposure" is commonly used to describe radiation doses to people while "irradiation" is more often used for radiation doses to food or industrial objects.

irradiator *(irradiateur)*
A device that is designed to contain a nuclear substance and to deliver controlled doses of radiation to any target material except persons. (Source: *General Nuclear Safety and Control Regulations*)
OR
A device that is designed to contain a nuclear substance and to deliver controlled doses of radiation from that substance to any target except persons. (Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

IRRS *(SEIR)*
Integrated Regulatory Review Service

IRS *(IRS)*
See International Reporting System for Operating Experience.

ISAR *(ISAR)*
See industrial safety accident rate.

ISI *(inspection en service)*
See in-service inspection.

island load *(îlotage)*
See house load operation.

island operation *(fonctionnement en îlotage)*
See house load operation.

ISO *(ISO)*
International Organization for Standardization

isocentre *(isocentre)*
For teletherapy equipment, the intersection between the central axis of the primary beam and the axis of gantry rotation.

isotope *(isotope)*
A variation in the form of atoms, of the same chemical element, which are distinguished by the number of neutrons in the nucleus. The number of protons remains the same, but the number of neutrons differs. For example, uranium has 16 different isotopes.

isotope production accelerator *(accélérateur pour la production d'isotopes)*
A particle accelerator that is designed and used for producing nuclear substances by irradiating a target material.

ISR *(EIS)*
integrated safety review; see periodic safety review

item *(article)*
With respect to nuclear material accounting, an individually identifiable unit of nuclear material (for example, a fissile assembly or material in bulk form in a container, such as a tank or box, that is kept intact while stored in the material balance area).

J

jet impact *(impact d'un jet)*
The potential internal hazard associated with high-pressure fluid released from a pressure-retaining component.

job *(emploi)*
The work performed by an incumbent in a position or by a group of incumbents in a position who perform essentially the same duties and tasks and require similar knowledge, skills and safety-related attributes to perform those tasks.

jurisdiction *(instance)*
[For Class I nuclear facilities, m]eans
(a) a federal authority;
(b) any agency or body that is established under an Act of Parliament and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a Class I nuclear facility or its construction, operation, decommissioning or abandonment;
(c) the government of a province;

(d) any agency or body that is established under an Act of the legislature of a province, and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a Class I nuclear facility or its construction, operation, decommissioning or abandonment;

(e) any body that is established under a land claims agreement referred to in section 35 of the *Constitution Act, 1982*, and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a Class I nuclear facility or its construction, operation, decommissioning or abandonment;

(f) a governing body that is established under legislation that relates to the self-government of Indians and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a Class I nuclear facility or its construction, operation, decommissioning or abandonment;

(g) a government of a foreign state or of a subdivision of a foreign state, or any institution of such a government; and

(h) an international organization of states or any institution of such an organization.

(Source: *Class I Nuclear Facilities Regulations*)

OR

[For uranium mines and mills, m]eans

(a) a federal authority;

(b) any agency or body that is established under an Act of Parliament and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a uranium mine or mill or its construction, operation, decommissioning or abandonment;

(c) the government of a province;

(d) any agency or body that is established under an Act of the legislature of a province, and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a uranium mine or mill or its construction, operation, decommissioning or abandonment;

(e) any body that is established under a land claims agreement referred to in section 35 of the *Constitution Act, 1982*, and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a uranium mine or mill or its construction, operation, decommissioning or abandonment;

(f) a governing body that is established under legislation that relates to the self-government of Indians and that has powers, duties or functions in relation to an assessment of the environmental effects of the preparation of a site for a uranium mine or mill or its construction, operation, decommissioning or abandonment;

(g) a government of a foreign state or of a subdivision of a foreign state, or any institution of such a government; and

(h) an international organization of states or any institution of such an organization.

(Source: *Uranium Mines and Mills Regulations*)

K

k_{eff}
See effective multiplication factor.

key measurement point (KMP) *(point de mesure principal [PMP])*
A location in a material balance area where nuclear material is processed or stored. A physical KMP is a storage location where the quantity of the material can be determined. A flow KMP is a place where the movement of the material is determined.

KI *(KI)*
potassium iodide

KMP *(PMP)*
See key measurement point.

knowledge *(connaissance)*
The theoretical and/or practical understanding of a subject matter required to perform work.

L

label *(étiquette)*
With respect to nuclear material accounting, a unique three- or four-digit number used to clearly identify information (for example, hazardous materials).

lapel sampler *(échantillonneur d'air personnel[EAP])*
See personal air sampler.

large object *(objet de grande dimension)*
An object that has been decommissioned from a nuclear facility, that is internally contaminated with nuclear substances meeting the requirements applicable to an SCO-I or SCO-II as set out in the IAEA Regulations and that cannot be transported in a type of package described in these Regulations due to its dimensions. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

LBB *(FAR)*
See leak before break.

LBLOCA *(APRPGB)*
large-break loss-of-coolant accident; see loss-of-coolant accident.

LCH *(MCP)*
licence conditions handbook

LCMP *(PGV)*
lifecycle management plan; see aging management program / aging management plan

LDRM *(MRFD)*
See low dispersible radioactive material.

leak before break (LBB) *(fuite avant rupture[FAR])*
Leakage from a flaw in a pressurized component (such as a pipe) during normal operation of a nuclear reactor, detected early enough for the reactor to be shut down and depressurized before the flaw grows large enough to cause a rupture.

leak test *(épreuve d'étanchéité)*
With respect to sealed sources (including sealed sources within prescribed equipment) or nuclear substances used as shielding, a method of verifying the integrity of the encapsulation of the sealed source or ensuring that the nuclear substance used for shielding is not readily removable from the surface of that shielding.

learning *(apprentissage)*
A change in behaviour that occurs as a result of the acquisition of knowledge, skills or safety-related attributes.

lesson plan *(plan de cours)*
A guide that instructors use to ensure that training is specific and goal oriented.

LET *(TLE)*
linear energy transfer

LEU *(UFE)*
See low-enriched uranium.

licence *(permis)*
A licence issued under section 24. (Source: *Nuclear Safety and Control Act*)
Note: This legal document issued by the Commission or a designated officer allows an activity (defined under section 26) to be carried out. The NSCA authorizes the Commission and, in some cases, designated officers to grant licences for purposes listed in section 26 of the NSCA.

licence purpose *(objet du permis)*
A particular use of nuclear substances as described in the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*.

licensed activity *(activité autorisée)*
An activity described in any of paragraphs 26(a) to (f) of the Act that a licence authorizes the licensee to carry on. (Sources: *General Nuclear Safety and Control Regulations*; *Radiation Protection Regulations*)

OR

An activity described in paragraph 26(e) of the Act that a licence authorizes the licensee to carry on in relation to a Class I nuclear facility. (Source: *Class I Nuclear Facilities Regulations*)

OR

An activity described in paragraph 26(a), (c) or (e) of the Act that a licence authorizes the licensee to carry on in relation to a Class II nuclear facility or Class II prescribed equipment. (Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

OR

An activity described in any of paragraphs 26(a) to (e) of the Act that a licence authorizes the licensee to carry on in relation to a nuclear substance or a radiation device. (Source: *Nuclear Substances and Radiation Devices Regulations*)

OR

An activity described in paragraph 26(e) of the Act that a licence authorizes the licensee to carry on in relation to a uranium mine or mill. (Source: *Uranium Mines and Mills Regulations*)

licensee *(titulaire de permis)*
Note: In the regulations below, a person may be an individual or organization.

A person who is licensed to carry on an activity described in any of paragraphs 26(a) to (f) of the Act. (Sources: *General Nuclear Safety and Control Regulations*; *Radiation Protection Regulations*)

OR

A person who is licensed to carry on an activity described in paragraph 26(e) of the Act in relation to a Class I nuclear facility. (Source: *Class I Nuclear Facilities Regulations*)

OR

A person who is licensed to carry on an activity described in any of paragraphs 26(a), (c) or (e) of the Act in relation to a Class II nuclear facility or Class II prescribed equipment. (Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

OR

A person who is licensed to carry on an activity described in any of paragraphs 26(a) to (c) of the Act in relation to a nuclear substance or a radiation device. (Source: *Nuclear Substances and Radiation Devices Regulations*)

OR

Means

(a) in this section and sections 2 to 7.2, a person who is licensed to carry on an activity described in any of paragraphs 26(a), (b), (e) or (f) of the Act in relation to Category I, II or III nuclear material or a nuclear power plant;
(b) in sections 7.3 to 38, a person who is licensed to carry on an activity described in any of paragraphs 26(a), (b), (e) or (f) of the Act in relation to a high-security site; and
(c) in Part 2, a person who is licensed to carry on an activity described in any of paragraphs 26(a), (b) or (e) of the Act in relation to a nuclear facility set out in column 2 of Schedule 2.

(Source: *Nuclear Security Regulations*)

Note: In paragraph (a) above, "in this section" refers to section 1 of the *Nuclear Security Regulations*.

OR

A person who is licensed to carry on an activity described in paragraph 26(e) of the Act in relation to a uranium mine or mill. (Source: *Uranium Mines and Mills Regulations*)

licensee documents requiring notification of change *(documents de permis nécessitant un avis de changement)*

Licensee documents for which the licensee is required to notify the CNSC, in writing, when changes are made. These documents are typically identified in the licence conditions handbook.

licensing *(processus d'autorisation)*

Activities for processing and assessing an application related to a licence or certificate or a request for an approval prior to issuing, denying, renewing, amending or replacing the licence, certificate or approval. This includes similar work prior to suspending or revoking a licence or certificate.

licensing basis *(fondement d'autorisation)*

A set of requirements and documents for a regulated facility or activity comprising:

- the regulatory requirements set out in the applicable laws and regulations
- the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence
- the safety and control measures described in the licence application and the documents needed to support that licence application

lifecycle management plan (LCMP) *(programme ou plan de gestion du vieillissement [PGV])*

See aging management program / aging management plan.

lifecycle of a nuclear facility *(cycle de vie d'une installation nucléaire)*

The various stages of a nuclear facility's lifespan, including site selection, site preparation, construction, operation, decommissioning and abandonment.

lifecycle planning *(planification du cycle de vie)*
A planning process for decommissioning that begins in the design and construction phases of a facility, remains responsive to new information obtained during operations, culminates in a detailed plan for CNSC approval at the end of operations, and remains flexible and adaptive to conditions encountered during the actual decommissioning process.

limit of operating envelope (LOE) *(enveloppe limite d'exploitation [ELE])*
An assumption, used in a deterministic safety analysis, that, prior to a postulated accident, a nuclear facility was operating with some of the important plant operating parameters being at their safety limits, while some of the models used to describe the event may be conservative. **Note:** LOE does not necessarily mean an impossible plant operating state. However, depending on the number and nature of the conservative assumptions made in the analysis, the event may become highly improbable, if not physically impossible.

LLOCA *(APMRP)*
large loss-of-coolant accident; see loss-of-coolant accident

LLRD *(PRLP)*
long-lived radioactive dust

LLW *(DFA)*
See low-level waste.

LOCA *(APRP)*
See loss-of-coolant accident.

location *(emplacement)*
With respect to nuclear substances and radiation devices, any room, area, enclosure, land or base(s) of operations the licensee occupies where the licensee uses or stores nuclear substances for more than 90 consecutive days per calendar year. The location may be identified by a postal address or global positioning system coordinates.

location outside facilities (LOF) *(emplacement hors installations)*
Any installation or location, other than a facility, where nuclear material is customarily used in amounts of one effective kilogram or less and is subject to full nuclear material accounting and reporting.

locked position *(position verrouillée)*
For exposure devices, the condition of a sealed source assembly, with either an exposure container or source changer, in the secured and locked position.

LOE *(ELE)*
See limit of operating envelope.

LOF *(emplacement hors installations)*
See location outside facilities.

logging *(diagraphie)*
The use of sealed sources to obtain subsurface geological information.

long term *(long terme)*
With respect to disposal of radioactive waste or of mineralized waste rock and tailings, any period of time after which active institutional controls can be expected to cease.

long-term management of nuclear waste *(gestion à long terme des déchets nucléaires)*
The long-term management of radioactive nuclear waste by means of storage or disposal, including handling, treatment, conditioning or transport for the purpose of storage or disposal. Also called long-term waste management.

long-term operation (LTO) *(exploitation à long terme)*
The operation, beyond the originally intended operating life of a reactor facility, which has been justified by a safety assessment that considers life-limiting processes and features for structures, systems and components.

long-term waste management *(gestion à long terme des déchets)*
See long-term management of nuclear waste.

loss-of-coolant accident (LOCA) *(accident de perte de réfrigérant primaire [APRP])*
A type of reactor accident that results from a loss of coolant due to a break in the primary heat transport system.

lost days *(jours perdus)*
The number of calendar days, recommended by a physician or other healthcare professional, that an employee is unable to work beyond the day of injury or illness. Lost time ends as of the date that the employee is deemed fit to work either full or restricted work, or up to a maximum of 180 calendar days for any individual case.

lost-time injury *(accident entraînant une perte de temps de travail)*
An injury or illness resulting in lost days beyond the date of injury as a direct result of an occupational injury or illness incident.

low dispersible radioactive material (LDRM) *(matière radioactive faiblement dispersable [MRFD])*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

low-enriched uranium (LEU) *(uranium faiblement enrichi [UFE])*
Enriched uranium containing less than 20 percent by weight of isotope uranium-235, uranium-233, or combined uranium-233 and uranium-235.

low-level waste (LLW) *(déchet de faible activité [DFA])*
Radioactive solid waste that contains material with radionuclide content above established clearance levels and exemption quantities, but that generally has limited amounts of long-lived activity.

low toxicity alpha emitters *(émetteurs alpha de faible toxicité)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

LPO *(bouton de délai)*
last person out

LPSWOS *(CESBP)*
low-pressure service water open system

LRF *(FGER)*
large release frequency

LSA material *(matière LSA)*
Has the meaning assigned by the definition "low specific activity (LSA) material" in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

LTO *(exploitation à long terme)*
See long-term operation.

LWR *(REO)*
light-water reactor

M

main control room (MCR) *(salle de commande principale [SCP])*
A room where operations personnel can centrally monitor and control facility systems.

maintenance *(entretien)*
The organized activities, both administrative and technical, to keep Class II prescribed equipment and radiation devices, as well as structures, systems and components, in good operating condition. **Note:** For reactor facilities, maintenance includes repair aspects.

malevolent act *(acte malveillant)*
An illegal action or an action that is committed with the intent of causing wrongful harm.

management *(gestion)*
In relation to nuclear fuel waste, long-term management by means of storage or disposal, including handling, treatment, conditioning or transport for the purpose of storage or disposal. (Source: *Nuclear Fuel Waste Act*)

OR

A functional area that groups 3 of the 14 safety and control areas (SCAs) within the CNSC SCA Framework: management system, human performance management and operating performance. Other functional areas are "core control processes" and "facility and equipment".

management measures *(mesures de gestion)*
With respect to nuclear criticality safety, functions performed by a licensee, generally on a continuing basis, on nuclear criticality safety controls, to ensure the controls are available and reliable to perform their functions when needed. Management measures include configuration management, maintenance, training and qualifications, procedures, audits and assessments, event investigations, records management, and other quality assurance elements.

management system *(système de gestion)*
[With respect to packaging and transport of nuclear substances, h]as the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: In the IAEA Regulations, a management system means a set of interrelated or interacting elements (system) for establishing policies and objectives and enabling the objectives to be achieved in an efficient and effective manner.
OR
The framework of processes, procedures and practices used to ensure that an organization can fulfill all tasks required to achieve its objectives safely and consistently. **Note:** The management system integrates all elements of an organization into one coherent system to enable all of the organization's objectives to be achieved. These elements include the structure, resources and processes. Personnel, equipment and organizational culture, as well as the documented policies and processes, are parts of the management system.

management system SCA *(DSR Système de gestion)*
A safety and control area (SCA) that covers the framework that establishes the processes and programs required to ensure an organization achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture. This SCA is one of the 14 within the CNSC SCA Framework.

MAPS *(normes de performance minimales permises)*
See minimum allowable performance standards.

material balance area (MBA) *(zone de bilan matières [ZBM])*
An area within a facility or a location outside a facility where both of the following conditions apply:

- the quantity of nuclear material in each transfer to and from the area can be determined
- the physical inventory of nuclear material within the area can be determined when necessary, in accordance with specified procedures, so that the material balance can be established for IAEA safeguards purposes

material balance period *(période de bilan matières)*
The time between two consecutive physical inventory takings.

material category *(catégorie d'élément des matières nucléaires)*
With respect to nuclear material accounting, any one of the following:

- any of these element material categories – natural uranium, depleted uranium, enriched uranium, thorium and plutonium
- any of these isotope material categories – uranium-235, uranium-233 and plutonium-239

material description code (MDC) *(code de description de matière [CDM])*
With respect to nuclear material accounting, a four-character code used to describe nuclear material batches by physical form, chemical composition, containment or type of container, and by irradiation status and quality.

material unaccounted for *(différence d'inventaire)*
See inventory difference.

MBA *(ZBM)*
See material balance area.

MB Code *(code MB)*
See measurement basis code.

MBq *(MBq)*
megabecquerel, that is, 10^6 becquerels; see becquerel.

MCR *(SCP)*
See main control room.

MDC *(CDM)*
See material description code.

measurement basis code (MB Code) (measurement identification code) *(code de type de mesure [code de base de mesure])*
The data element for the method used to measure or determine the weight or mass data of a nuclear material element and isotope. The MB Code indicates whether weight data was determined in the current material balance area (MBA) or another MBA and whether the data was new or previously reported.

measurement uncertainty *(incertitude relative à la mesure)*
The amount by which a measured value may vary from the actual physical value of a parameter at the time of measurement.

medical linear accelerator *(accélérateur linéaire médical)*
An accelerator that produces a collimated beam of high-energy photons (X-rays) that are used to deliver controlled doses of radiation for therapeutic purposes.

medically treated injury *(accident nécessitant des soins médicaux)*
An injury or illness beyond a first aid injury, where there have been no lost days that are the direct result of an occupational injury or illness incident.

megabecquerel *(mégabecquerel)*
10^6 becquerels; see becquerel.

member *(commissaire)*
A member of the Commission appointed under section 10 of the Act. (Source: *Canadian Nuclear Safety Commission By-laws*)

Métis *(Métis)*
See Aboriginal peoples of Canada *or* Indigenous peoples.

MeV *(MeV)*
megaelectron volt

microsievert (μSv) *(microsievert [μSv])*
One-millionth of a sievert.

mill *(usine de concentration)*
A facility at which ore is processed and treated for the recovery of uranium concentrate, including any tailings-handling and water treatment system associated with the facility. (Source: *Uranium Mines and Mills Regulations*)

millisievert (mSv) *(millisievert [mSv])*
One-thousandth of a sievert.

mine *(mine)*
An excavation site and a removal site. (**Source:** *Uranium Mines and Mills Regulations*)
Note: A mine includes both these sites.

mineralized waste rock *(stériles minéralisés)*
Rock with the potential to release hazardous and/or nuclear substances that could significantly harm human health or the environment. Mineralized waste rock may be further segregated based on radiological content, contaminants of concern (such as nickel or arsenic), and acid-generating potential. Also called special waste rock.

mine waste *(résidu minier)*
Waste that includes tailings and mineralized waste rock but not overburden or clean rock.

minimum accident of concern *(accident préoccupant le moins grave)*
With respect to nuclear criticality safety, an accident resulting in a dose to free air of 0.20 gray in the first minute at a distance of 2 metres from the reacting material.

minimum allowable performance standards (MAPS) *(normes de performance minimales permises)*
The set of operating limits or the range of conditions, established for components or subsystems, which define the minimum acceptable states for those components or subsystems credited in a safety analysis.

minimum measurable concentration (MMC) *(concentration minimale mesurable [CCM])*
The smallest amount (activity or mass) of a radionuclide (or analyte) in a sample that will be detected with a probability β of non-detection while accepting a probability α of erroneously deciding that a positive (non-zero) quantity of analyte is present in an appropriate blank. MMC is measured in becquerels per litre.

minimum shift complement *(effectif minimal par quart)*
See minimum staff complement.

minimum staff complement *(effectif minimal par quart)*
The minimum number of qualified workers who must be present at all times to ensure the safe operation of a nuclear facility and its adequate emergency response capability. **Note:** Also called minimum shift complement. While shift and staff have similar meanings, shift is used in power reactor operating licences.

minimum testing level (MTL) *(niveau minimal d'essai [NME])*
The smallest amount of radioactive material that a dosimetry service must be able to measure as part of an independent testing program.

Minister *(ministre)*
The Minister of Natural Resources or such member of the Queen's Privy Council for Canada as the Governor in Council may designate as the Minister for the purposes of this Act. (**Source:** *Nuclear Safety and Control Act*)

misconnect *(mauvaise connexion)*
For exposure devices, a condition in which a remote control can be attached to an exposure container without attaching the control cable to the sealed source assembly.

missile generation *(formation de missiles)*
The hazard associated with the sudden high-speed propulsion of debris.

mission time *(temps de mission)*
The duration within which a system or component is required to operate or be available to operate and fulfill its function following an event.

mitigation *(mesures d'atténuation)*
Measures aimed at eliminating, reducing or controlling the adverse effects of a licensed activity, substance, equipment or facility. Mitigation may include restitution for any damage caused by such effects, such as through replacement, restoration or compensation.

mitigative control *(contrôle atténuateur)*
A control intended to reduce the consequences of an accident sequence, not to prevent it. When a mitigative control works as intended, the results of the sequence are called the mitigated consequences.

MMC *(CMM)*
See minimum measurable concentration.

modelling parameters *(paramètres de modélisation)*
With respect to environmental risk assessment, numerical values used to characterize properties of contaminants (such as an octanol-water partitioning coefficient) and environmental media (such as an organic matter fraction of soil) that are used in models to predict the environmental fate and transport of contaminants.

moderation *(modération)*
The process of decreasing the energy of neutrons through successive collisions with moderator nuclei without appreciable competing capture.

moderator *(modérateur)*
A material used to slow down or "moderate" neutrons produced by the nuclear fuel. The moderator reduces neutron energy by scattering without appreciable capture. Materials of prime concern are those containing light nuclei with large scattering cross-sections and relatively low absorption cross-sections.

moderator control area *(zone de contrôle des modérateurs)*
An area defined by a nuclear criticality safety evaluation in which moderators are limited and controlled for nuclear criticality safety.

moderator control engineered barrier *(barrière artificielle de contrôle du modérateur)*
A physical feature of a system specifically identified and used to limit or control the introduction of moderators for nuclear criticality safety. Some examples of typical moderator control engineered barriers are secondary roofs, false ceilings, secondary walls, vapour barriers, raised floors or structure, normally closed apertures, and seals.

modified Kusnetz method *(méthode de Kusnetz modifiée)*
A method of determining and expressing atmospheric concentrations of radon progeny in terms of latent alpha energy. This method requires the use of an alpha counter equipped with an electronic scaler to measure the emission of alpha particles.

monitoring *(contrôle)*
See condition monitoring.

MSDS *(FS)*
material safety data sheet (associated with Workplace Hazardous Materials Information System)

MSIV *(VIPV)*
main steam isolation valve

MTL *(NME)*
See minimum testing level.

MTU *(MTU)*
metric tonne of uranium

MU *(UM)*
monitor unit

N

National Dose Registry (NDR) *(Fichier dosimétrique national [FDN])*
The centralized database of occupational radiation exposure records, managed, updated and maintained by the Radiation Protection Bureau of Health Canada. The NDR publishes annual reports on occupational dose information and trends, according to job type, over the lifetime of registered individuals.

National Non-Destructive Testing (NDT) Certification Body (NCB) *(Organisme de certification national [OCN] en essais non destructifs [END])*
The division of Natural Resources Canada that administers, on behalf of the CNSC, the written examination for candidates for the position of exposure device operator.

natural analogues *(analogues naturels)*
Natural conditions or processes, occurring over long periods of time, that are the same as or similar to those known or predicted to occur in some part of a waste management system.

natural phenomenon event *(phénomène naturel)*
An earthquake, flood, tornado, tsunami, hurricane or other event that occurs in the natural environment and could adversely affect safety. Natural phenomenon events may be credible or incredible, depending on their likelihood of occurrence.

natural uranium *(uranium naturel)*
Uranium that contains uranium-235 in a concentration that is normally found in nature. (Source: *Nuclear Substances and Radiation Devices Regulations*)
Note 1: With respect to nuclear criticality safety, this concentration of this isotope is equal to or less than 0.71 percent by weight.
Note 2: With respect to packaging and transport of nuclear substances, natural uranium means uranium (which may be chemically separated) containing the naturally occurring distribution of uranium isotopes (approximately 99.28 percent uranium-238, and 0.72 percent uranium-235 by mass). A very small mass percentage of uranium-234 is present.

NCB *(OCN)*
See National Non-Destructive Testing (NDT) Certification Body.

NCS *(SCN)*
See nuclear criticality safety.

NCSE *(ESCN)*
nuclear criticality safety evaluation

NCS staff *(personnel de SCN)*
See nuclear criticality safety staff.

NDR *(FDN)*
See National Dose Registry.

NDT *(END)*
non-destructive testing; see also National Non-Destructive Testing (NDT) Certification Body

NEM *(GUN)*
See nuclear emergency management.

NEO *(OUN)*
See Nuclear Emergency Organization.

neutron *(neutron)*
A subatomic particle found in the nucleus of atoms. A neutron has a mass of about 1.6×10^{-27} kg and no electric charge.

neutron absorber *(absorbeur de neutrons)*
A neutron-capture material; that is, a substance with a large neutron absorption cross-section. When neutron absorption is not desired, a neutron absorber may be called a neutron poison. Some examples of neutron absorbers are:

- boron, used in some shutdown systems
- some of the products generated during fission that have a high neutron absorption cross-section, such as xenon-135 and samarium-149

neutron absorber system *(système absorbeur de neutrons)*
Any combination of fixed neutron absorbers, fixed moderators, and other materials with an assigned nuclear criticality safety function.

neutron multiplication *(multiplication des neutrons)*
The process in which a neutron produces on the average more than one neutron in a medium containing fissile material.

neutron poison *(poison neutronique)*
See neutron absorber.

NEW *(TSN)*
See nuclear energy worker.

NOA *(avis d'évaluation – RIEN À SIGNALER)*
See NOA – NO ADVERSE INFO *or* Notice of Assessment (NOA) – INSUFFICIENT INFO.

NOA – NO ADVERSE INFO *(avis d'évaluation – RIEN À SIGNALER)*
A notice of assessment issued by the Canadian Security Intelligence Service, indicating that there is no adverse information regarding an applicant's loyalty to Canada.

non-fixed contamination *(contamination non fixée)*
As defined in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: In the IAEA Regulations, non-fixed contamination means contamination that can be removed from a surface during routine conditions of transport.

non-ionizing radiation *(rayonnement non ionisant)*
Radiation that has a lower energy level than ionizing radiation and cannot remove an electron from an atom and produce ions. Examples include ultraviolet (UV), visible light, infrared, microwaves and radio waves. This type of radiation is not regulated by the *Nuclear Safety and Control Act*.

non-routine bioassay *(essai biologique spécial)*
Any bioassay that is implemented as part of an ad hoc response to a particular circumstance, such as a known or suspected intake of radioactive material due to an abnormal incident in the workplace. Also called ad hoc bioassay; special bioassay.

non-safeguarded material *(matières non visées par les garanties)*
Source material and special fissionable material under IAEA safeguards (agreement INFCIRC/164) that has not reached the stage of the nuclear fuel cycle as described in article 34(c) of the agreement.

non-stochastic effect *(effet non stochastique)*
See deterministic effect.

normal operation *(exploitation normale)*
The operation of a nuclear facility within specified operational limits and conditions, including (where applicable) start-up, power operation, shutting down, shutdown, maintenance, testing and refuelling. In nuclear reactors, normal operation is a plant state.

Notice of Assessment (NOA) – INSUFFICIENT INFO *(avis d'évaluation – RENSEIGNEMENTS INSUFFISANTS)*
A notice of assessment issued by the Canadian Security Intelligence Service (CSIS) indicating that there is insufficient information for CSIS to provide a meaningful assessment on the loyalty to Canada of an applicant for site access security clearance, usually due to lack of traceable history or residency.

NPP *(centrale nucléaire)*
See nuclear power plant.

NPT *(TNP)*
Treaty on the Non-Proliferation of Nuclear Weapons (also referred to as the Non-Proliferation Treaty or the Nuclear Non-Proliferation Treaty).

NRC *(CNRC* ou *NRC des États-Unis)*
National Research Council *or* see U.S. Nuclear Regulatory Commission.

NSCA *(LSRN)*
See *Nuclear Safety and Control Act*.

NSG *(GFN)*
See Nuclear Suppliers Group.

NSO *(ASN)*
See nuclear security officer.

nuclear activity
See activity *or* licensed activity.

nuclear and nuclear-related dual-use items *(articles à caractère nucléaire et articles à double usage dans le secteur nucléaire)*
Categories in the *Nuclear Non-proliferation Import and Export Control Regulations* that group controlled nuclear substances, equipment and information. Part A of the schedule in the Regulations lists nuclear items under each of these three categories, and Part B lists nuclear-related dual-use items under the same categories.
Note: The term dual use refers to the potential for a nuclear or nuclear-related item to be used not only in civilian applications, but also in a nuclear weapons program.

nuclear criticality *(criticité nucléaire)*
A self-sustaining chain reaction of nuclear fission. (Source: *Nuclear Substances and Radiation Devices Regulations*)
Note: With respect to nuclear criticality safety, pertaining to a system that supports a sustained fission chain reaction.

nuclear criticality process evaluation *(évaluation de procédé en matière de criticité nucléaire)*
A document that identifies and defines all known nuclear criticality safety concerns; documents nuclear criticality safety assumptions, requirements, limits and controls; and demonstrates subcriticality. Also called process evaluation.

nuclear criticality safety (NCS) *(sûreté-criticité nucléaire [SCN])*
Protection against the consequences of a criticality accident, preferably by prevention of the accident.

nuclear criticality safety control *(contrôle de sûreté-criticité nucléaire)*
Structures, systems, equipment, components, and activities of personnel that are relied on to prevent accidents at a facility or to mitigate their potential consequences. Also called criticality safety control.
Note: This control does not limit the licensee from identifying additional structures, systems, equipment, components, or activities of personnel (that is, beyond those in the minimum set necessary for compliance with the performance requirements) as items relied on for safety. All safety controls (active engineered control, passive engineered control, simple administrative control and enhanced administrative control) are nuclear criticality safety controls.

nuclear criticality safety staff (NCS staff) *(personnel de sûreté-criticité nucléaire [personnel de SCN])*
Specialists skilled in the techniques of nuclear criticality safety assessment and familiar with plant operations while, to the extent practicable, administratively independent of process supervision. Also called criticality safety staff.

nuclear emergency *(urgence nucléaire)*
An abnormal situation that may increase the risk of harm to the health and safety of persons, the environment or national security, and that requires the immediate attention of the CNSC. Some examples are an emergency at a nuclear facility; an emergency involving a nuclear-powered vessel in a Canadian port; an emergency involving the loss, theft or discovery of radioactive material; or a terrorist attack using radioactive material.

nuclear emergency management (NEM) *(gestion des urgences nucléaires[GUN])*
The organized effort to prevent, prepare for, respond to and recover from a nuclear emergency.

nuclear emergency management program *(programme de gestion des urgences nucléaires)*
The comprehensive program described by the CNSC's nuclear emergency management policy document together with the nuclear emergency management plan and approved supporting procedures, guidelines and other documents.

Nuclear Emergency Organization (NEO) *(Organisation d'urgence nucléaire [OUN])*
A CNSC body that carries out all CNSC activities needed to effectively respond to a nuclear emergency.

nuclear energy *(énergie nucléaire)*
Any form of energy released in the course of nuclear fission or nuclear fusion or of any other nuclear transmutation. (Source: *Nuclear Safety and Control Act*)

Nuclear Energy Agency (NEA) *(Agence pour l'énergie nucléaire [AEN])*
A specialized agency within the Organisation for Economic Co-operation and Development. The mission of the NEA is to assist its member countries in maintaining and further developing, through international cooperation, the scientific, technological and legal bases required for the safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.

nuclear energy worker (NEW) *(travailleur du secteur nucléaire [TSN])*
A person who is required, in the course of the person's business or occupation in connection with a nuclear substance or nuclear facility, to perform duties in such circumstances that there is a reasonable probability that the person may receive a dose of radiation that is greater than the prescribed limit for the general public. (Source: *Nuclear Safety and Control Act*)

nuclear facility *(installation nucléaire)*
Any of the following facilities, namely,
(a) a nuclear fission or fusion reactor or subcritical nuclear assembly,
(b) a particle accelerator,
(c) a uranium or thorium mine or mill,
(d) a plant for the processing, reprocessing or separation of an isotope of uranium, thorium or plutonium,
(e) a plant for the manufacture of a product from uranium, thorium or plutonium,
(f) a plant for the processing or use, in a quantity greater than 10^{15} Bq per calendar year, of nuclear substances other than uranium, thorium or plutonium,
(g) a facility for the disposal of a nuclear substance generated at another nuclear facility,
(h) a vehicle that is equipped with a nuclear reactor, and
(i) any other facility that is prescribed for the development, production or use of nuclear energy or the production, possession or use of a nuclear substance, prescribed equipment or prescribed information,
and includes, where applicable, the land on which the facility is located, a building that forms part of, or equipment used in conjunction with, the facility and any system for the management, storage or disposal of a nuclear substance.
(Source: *Nuclear Safety and Control Act*)
OR

Any of the following:

(a) any nuclear reactor, including a reactor installed on a vessel, vehicle, aircraft or space object for use as an energy source in order to propel the vessel, vehicle, aircraft or space object or for any other purpose, and

(b) any plant or conveyance used for the production, storage, processing or transport of nuclear material or radioactive material

(Source: *Nuclear Terrorism Act*)

nuclear facility perimeter *(périmètre de l'installation nucléaire)*
The outer boundary of a geographical area that contains the licensed facility and within which the management of the licensed facility may directly initiate emergency actions. The nuclear facility perimeter typically encloses the area within the security fence or other designated property marker.

nuclear loss *(consommation)*
The loss of nuclear material due to its transformation into other element(s) or isotope(s) as a result of nuclear reactions. Nuclear loss also includes burnup of nuclear material in a reactor and radioactive decay (for example, plutonium-241).

nuclear material *(matières nucléaires)*
With respect to nuclear material accounting, these substances: natural uranium, depleted uranium, enriched uranium, plutonium and thorium. **Note:** Material requiring reporting to CNSC includes all material under the Canada/IAEA safeguards agreement. Group 1 is nuclear material that is safeguarded under article 34(c) of the agreement. Group 2 is source material excluding both ore residues and depleted uranium.

nuclear medicine room *(salle de médecine nucléaire)*
Any area or enclosure where nuclear substances are prepared for or administered to a person (via injection, inhalation or ingestion) for the purpose of diagnosing or treating disease and for human research studies (excluding medical diagnostic X-rays or the medical use of sealed sources for brachytherapy or teletherapy treatments).

nuclear medicine technologist *(technologue en médecine nucléaire)*
A medical radiation technologist certified by the Canadian Association of Medical Radiation Technologists. Working in the field of nuclear medicine, this technologist performs various duties. For example, the technologist prepares and administers radiopharmaceuticals, takes images of different organs and bodily structures, uses computers to process data and enhance images, analyzes biological specimens and works closely with all members of the healthcare team.

nuclear poison *(poison nucléaire)*
See neutron absorber.

nuclear power plant (NPP) *(centrale nucléaire)*
A nuclear facility consisting of any fission-reactor installation that has been constructed to generate electricity on a commercial scale. (Source: *Nuclear Security Regulations*)
Note 1: An NPP may include more than one nuclear reactor.
Note 2: An NPP may also be constructed with the intent to provide heat or steam on a commercial scale.

nuclear production *(production nucléaire)*
The generation of special fissionable material through the irradiation of fertile material in a reactor.

Nuclear Regulatory Commission (NRC) *(Nuclear Regulatory Commission [NRC])*
See U.S. Nuclear Regulatory Commission.

Nuclear Safety and Control Act **(NSCA)** *(Loi sur la sûreté et la réglementation nucléaires [LSRN])*
An Act of Parliament that came into force on May 31, 2000, replacing the *Atomic Energy Control Act*. The NSCA provides the Canadian Nuclear Safety Commission with its regulatory authority.

nuclear security officer (NSO) *(agent de sécurité nucléaire [ASN])*
A person whose function is to provide security at a high-security site and to whom an authorization referred to in subsection 18(2) has been issued. (Source: *Nuclear Security Regulations*)

nuclear substance *(substance nucléaire)*
Means:

(a) deuterium, thorium, uranium or an element with an atomic number greater than 92;
(b) a derivative or compound of deuterium, thorium, uranium or of an element with an atomic number greater than 92;
(c) a radioactive nuclide;
(d) a substance that is prescribed as being capable of releasing nuclear energy or as being required for the production or use of nuclear energy;
(e) a radioactive by-product of the development, production or use of nuclear energy; and
(f) a radioactive substance or radioactive thing that was used for the development or production, or in connection with the use, of nuclear energy.

(Source: *Nuclear Safety and Control Act*)

nuclear substance laboratory *(laboratoire de substances nucléaires)*
A laboratory in which unsealed sources are used. Also called radioisotope laboratory.

Nuclear Suppliers Group (NSG) *(Groupe des fournisseurs nucléaire (GFN))*
A multilateral export control regime of nuclear supplier countries which seeks to contribute to the non-proliferation of nuclear weapons through the implementation of International Atomic Energy Agency Guidelines (INFCIRC/254, *Communications Received from Certain Member States Regarding Guidelines for the Export of Nuclear Material, Equipment or Technology* [6]) for supply of nuclear and nuclear-related dual-use items.

nucleus *(noyau)*
The very dense region at the centre of an atom that consists of protons and neutrons.

O

obligations *(obligations)*
Legally binding commitments regarding nuclear material, non-nuclear material, nuclear equipment and nuclear information (sometimes referred to as "flags"). Obligations arise most commonly from the requirements of government-to-government nuclear cooperation agreements, wherein the parties to the agreements are bound to fulfill those requirements before authorizing the transfer of the obligated items.

observed reliability *(fiabilité observée)*
A reliability measure that is calculated using actual operating performance.

observer *(observateur)*
In an emergency exercise, a person who is authorized to witness the exercise but who is not a participant, controller or evaluator.

obsolescence *(obsolescence)*
With respect to structures, systems and components, the process of becoming out of date in comparison with current knowledge, standards and technology.

OBT *(TLCO)*
organically bound tritium

occupancy factor *(facteur d'occupation)*
The fraction of total time during which a radiation field is present at a particular location, for which any one individual would reasonably be expected to be present at that location. This factor (≤1) is multiplied by the total radiation dose at that location, to derive the maximum personal dose any single person would be expected to receive.

offsite power *(alimentation électrique hors site)*
Power supplied from an electrical grid.

offsite response force *(force d'intervention externe)*
A local, provincial or federal police service whose members are not located at a nuclear facility. (Source: *Nuclear Security Regulations*)

OJT *(formation en cours d'emploi [FCE]* ou *formation en milieu de travail)*
See on-the-job training.

OLC *(LCE)*
See operational limits and conditions.

one-year dosimetry period *(période de dosimétrie d'un an)*
The period of one calendar year beginning on January 1 of the year following the year in which these Regulations come into force, and every period of one calendar year after that period. (Source: *Radiation Protection Regulations*)
Note: These Regulations came into force in May 2000; therefore the first dosimetry period began on January 1, 2001.

onsite nuclear response force *(force d'intervention nucléaire interne)*
Means:
(a) a team of nuclear security officers whose members are
  (i) trained in the use of firearms, authorized to carry firearms in Canada and qualified to use them, and
  (ii) permanently located at a high-security site; or
(b) a local, provincial or federal police service, a Canadian Forces unit or any other force
  (i) under contract to a licensee,
  (ii) whose members are trained in the use of firearms, authorized to carry firearms in Canada and qualified to use them, and
  (iii) whose members are permanently located at a high-security site
(Source: *Nuclear Security Regulations*)

onsite power *(alimentation électrique sur le site)*
Power supplied from a nuclear power plant's alternating current (AC) power systems, direct current (DC) power systems and uninterruptible AC power systems.

on-the-job evaluation *(évaluation en cours d'emploi)*
Performance demonstration by a trainee of knowledge, skills, safety-related attributes and work practice standards required to perform a task using the approved procedure and the prescribed standards. The evaluation is conducted on the job.

on-the-job training (OJT) *(formation en cours d'emploi [FCE]ou formation en milieu de travail)*
The training undertaken in the actual work environment to obtain required job-related knowledge and skills.

OP&P *(LCE)*
See operating policies and principles.

open source *(source non scellée)*
See unsealed source.

operate *(faire fonctionner)*
Includes, in respect of an exposure device, coupling the drive mechanism to the exposure device, uncoupling the drive mechanism from the exposure device, locking or unlocking the exposure device, and all activities involving the device that take place while the sealed source assembly is not locked inside the device in the fully shielded position. (Source: *Nuclear Substances and Radiation Devices Regulations*)

operating experience (OPEX) *(expérience d'exploitation [OPEX])*
Pertinent internal and external information, gained through practical experience, used to learn about and improve the safety and reliability of nuclear facilities.

operating organization *(exploitant)*
The responsible organization that operates, or will operate, a facility. This organization may be the licensee, the applicant or an organization that will operate the facility on behalf of the applicant.

operating performance SCA *(DSR Conduite de l'exploitation)*
A safety and control area (SCA) that includes an overall review of the conduct of the licensed activities and the activities that enable effective performance. This SCA is one of the 14 within the CNSC SCA Framework.

operating policies and principles (OP&P) *(lignes de conduite pour l'exploitation [LCE])*
The boundaries within which a nuclear power plant must be operated, maintained and modified, to keep the risk to workers, the public and the environment acceptably low.

operating states *(états de fonctionnement)*
See operational states.

operation *(exploitation)*
All activities performed to achieve the purpose for which a nuclear facility was constructed. For example, at reactor facilities, operation includes maintenance, refuelling, in-service inspection and other associated activities.

operational limits and conditions (OLC) *(limites et conditions d'exploitation [LCE])*
A set of rules setting forth parameter limits and the functional capability and performance levels of equipment and personnel for safe operation of a nuclear facility. This set of limits and conditions is monitored by or on behalf of the operator and can be controlled by the operator.

operational mode *(mode d'exploitation)*
In a reactor facility, a mode of operation that may include start-up, operation at various power levels, shutting down, shutdown, maintenance, testing and refuelling.

operational parameters *(paramètres d'exploitation)*
See plant parameters.

operational states *(états de fonctionnement)*
Plant states defined under normal operation and anticipated operational occurrences.

operations with fissionable materials *(activités comportant des matières fissiles)*
Any activity involving the handling, use, processing, movement and storage of fissionable materials within nuclear facilities and the long-term management of nuclear waste containing fissionable materials.

operator *(exploitant)*
The holder of a subsisting licence issued pursuant to the *Nuclear Safety and Control Act* for the operation of a nuclear installation or, in relation to any nuclear installation for the operation of which there is no subsisting licence, the recipient of the licence last issued pursuant to the *Nuclear Safety and Control Act* for the operation of that nuclear installation. (Source: *Nuclear Liability Act*)
OR
operator *(opérateur)*
An industrial device operator.
OR
A person responsible for nuclear material inventory.
OR
See certified exposure device operator.
OR
See reactor operator.
OR
See unit 0 operator.

OPEX *(OPEX)*
See operating experience.

order *(ordre)*
One of the regulatory tools the CNSC uses to compel someone to do something in the interests of health, safety, the environment, national security or compliance with Canada's international obligations. Failure to comply with an order can lead to further regulatory measures, including prosecution or licensing actions.

ore *(minerai)*
A mineral or chemical aggregate containing uranium in a quantity and of a quality that makes mining and extracting the uranium economically viable. (Source: *Uranium Mines and Mills Regulations*)
Note: Ore may also include thorium.

orphaned source *(source orpheline)*
A radioactive source that is found in the public domain, and for which no responsible owner can be established, or which is in the possession of a person who cannot be held responsible for the source's safe storage or disposal.

other person *(autre personne)*
With respect to a location where licensed activity is carried out, a person who is present at the location but does not perform work referred to in the licence.

other worker *(autre travailleur)*
A worker who has not been designated as a nuclear energy worker and is subject to the prescribed dose limit for the general public.

overburden *(morts-terrains)*
For uranium mining purposes, generally the material overlying the ore deposit, including rock as well as soil and other unconsolidated (loose) material, such as glacial deposits, sand and sediment.

overhaul *(remise en état)*
The comprehensive inspection and restoration of a structure, system or component to maintain it in good operating condition or to restore its ability to function as per design. Overhaul includes such actions as disassembly, cleaning, lubrication, adjustments, parts inspection or replacement, and testing.

overpack *(suremballage)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

P

package *(colis)*
Packaging with its radioactive contents, as presented for transport. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

packaging *(emballage)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

packaging and transport SCA *(DSR Emballage et transport)*
A safety and control area (SCA) that covers programs for the safe packaging and transport of nuclear substances to and from the licensed facility. This SCA is one of the 14 within the CNSC SCA Framework.

panel *(formation)*
A panel of the Commission consisting of one or more members established by the President under section 22 of the Act. (Source: *Canadian Nuclear Safety Commission By-laws*)

PAR *(recombineur autocatalytique passif)*
passive autocatalytic recombiner; also called passive autocatalytic hydrogen recombiner

parameter expectations *(valeurs prévues des paramètres)*
Measures or criteria against which the performance of a structure, system or component can be judged.

participant *(participant)*
A party or intervenor. (Source: *Canadian Nuclear Safety Commission Rules of Procedure*)
OR
An individual who is taking part in an emergency drill or exercise and responding to the simulated events.

party *(partie)*
Means:
(a) in relation to a licence application, the applicant;
(b) in relation to a licence renewal, suspension, amendment, revocation or replacement, the licensee;
(c) in relation to a matter being heard by the Commission in the public interest under the Act, and if these Rules do not otherwise set out who the parties are, any person whom the Commission names as party in the proceeding;
(d) in relation to the review by the Commission of an order of an inspector or a designated officer, a person who is named in or subject to the order;
(e) in relation to an appeal made to the Commission under subsection 43(1) of the Act, the appellant;
(f) in relation to a rehearing and redetermination under subsection 43(2) of the Act, any of the persons referred to in that subsection; and
(g) in relation to a redetermination on the Commission's own initiative under subsection 43(3) of the Act, any of the persons referred to in subsection 43(2) of the Act.
(Source: *Canadian Nuclear Safety Commission Rules of Procedure*)

PAS *(EAP)*
See personal air sampler.

passenger *(passager)*
Has the same meaning as in section 1.4 of the *Transportation of Dangerous Goods Regulations*.
(Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

passive component *(composant passif)*
A component that functions without depending on an external input such as actuation, mechanical movement or supply of power.

passive engineered (nuclear) criticality safety control *(contrôle technique passif de sûreté-criticité [nucléaire])*
See engineered (nuclear) criticality safety control.

PBD *(DEP)*
See pressure boundary degradation.

PDR *(DDP)*
pulsed dose rate

penalty *(pénalité)*
An administrative monetary penalty imposed under this Act for a violation. (Source: *Nuclear Safety and Control Act*)

performance evaluation *(évaluation de la performance)*
With respect to reliability programs, analysis based on initial objectives and estimates and usually made onsite, in order to provide information on operating experience and identify required corrective actions.

performance indicator (PI) *(indicateur de rendement)*
A quantifiable variable related to the actions of a proposed or licensed activity that may cause or indicate an adverse environmental effect if a certain threshold value is reached. **Note:** For reporting requirements for nuclear power plants, see safety performance indicator.

performance monitoring *(surveillance de la performance)*
With respect to reliability programs, the determination of whether equipment is operating or is capable of operating within specific limits.

performance target *(objectif de rendement)*
With respect to environmental protection, a limit on a performance indicator designed to prevent unreasonable risks to the environment. **Note:** More than one limit may be set or considered for a performance indicator.

performance testing *(essai de performance)*
Testing done to determine whether a system meets specified acceptance criteria.

periodic inspection *(inspection périodique)*
Examination of safety-significant pressure/fluid boundary components or containment components carried out in accordance with program requirements specified in the licence conditions handbook for a reactor facility. See also in-service inspection.

periodic maintenance *(entretien périodique)*
A form of preventive maintenance for structures, systems and components, which consists of servicing, parts replacement, surveillance, or testing at predetermined intervals of calendar time, operating time or number of cycles. Also called time-based maintenance.

periodic safety review (PSR) *(bilan périodique de la sûreté [BPS])*
A comprehensive assessment of nuclear power plant design and operation that deals with the cumulative effects of aging, modifications, operating experience, technical developments and siting factors, and aims at ensuring a high level of safety throughout the operating life of the plant.

periodic safety review (PSR) basis document *(document de fondement du bilan périodique de la sûreté (BPS))*
The information that sets out the scope and methodology for the conduct of a periodic safety review.

permanent repair *(réparation permanente)*
Any activity that restores a failed or degraded structure, system or component to function within its original design.

personal air sampler (PAS) *(échantillonneur d'air personnel [EAP])*
An air sampler, consisting of a filter holder and battery-powered vacuum pump, which is worn by a worker to estimate breathing zone concentrations of radionuclides. Also called lapel sampler.

personnel qualification *(qualifications du personnel)*
A formal statement that an individual or team possesses the education, training and experience required to meet specified job performance requirements. The personnel qualification is a formal statement of competence.

Personnel Security Standard *(Norme sur la sécurité du personnel)*
The document entitled *Chapter 2 – 4 – Personnel Security Standard*, published by the Treasury Board Secretariat and dated June 9, 1994, as amended from time to time. **(Source:** *Nuclear Security Regulations***)**

PET *(TEP)*
See positron emission tomography.

PHTS *(CCP)*
See primary heat transport system.

physical design SCA *(DSR Conception matérielle)*
A safety and control area (SCA) that relates to activities that impact the ability of structures, systems and components to meet and maintain their design basis given new information arising over time and taking changes in the external environment into account. This SCA is one of the 14 within the CNSC SCA Framework.

physical inventory *(stock physique)*
With respect to nuclear material accounting, the sum of all the measured or derived estimates of batch quantities of nuclear material at a given time within a material balance area obtained in accordance with the licensees' (CNSC-approved) program and procedures.

physical inventory verification (PIV) *(vérification des stocks physiques [VSP])*
With respect to nuclear material accounting, an inspection activity that follows closely, or coincides with, the physical inventory taking by the operator and closes the material balance period. The basis for physical inventory verification is the list of inventory items prepared by the operator.

physical protection measure *(mesure de protection physique)*
An element or a combination of elements in place at a nuclear facility for its protection – or for the protection of nuclear substances at the facility – against potential adversaries. (Source: *Nuclear Security Regulations*)
Note: Physical protection measures also apply during transport of nuclear substances.

physical protection system (PPS) *(système de protection physique [SPP])*
All of the physical protection measures in place at a nuclear facility. (Source: *Nuclear Security Regulations*)
Note: The physical protection measures include multiple obstacles or barriers, either similar or diverse, to prevent adversaries from achieving their goal. The physical protection system also applies during transport of nuclear substances.

physical protection system support person *(préposé au soutien du système de protection physique)*
A person who:
(a) carries out the design, implementation, maintenance or repair of a physical protection system at a high-security site or conducts training related to one or more of those activities; and
(b) is likely to be exposed to, or gain knowledge of, prescribed information in carrying out the activities referred to in paragraph (a).
(Source: *Nuclear Security Regulations*)

PI *(indicateur de rendement)*
See performance indicator.

PIE *(EIH)*
See postulated initiating event.

PIF *(FIP)*
See potential intake fraction.

pilot course *(cours pilote)*
A trial of a training program before it is implemented as regular training.

PIV *(VSP)*
See physical inventory verification.

planned maintenance *(entretien planifié)*
A form of preventive maintenance consisting of refurbishment or replacement that is scheduled and performed prior to an unacceptable degradation of a structure, system or component.

planned work *(travail planifié)*
Major safety-significant work scheduled in a nuclear reactor outage, which, in the licensee's judgment, is of regulatory interest but is not mandatory or committed, including:

- repair or maintenance tasks to correct known problems (such as level 3 impairments)
- inspection tasks (such as periodic inspection program (PIP) work) that must be completed over a multi-year cycle and for which there is another planned maintenance outage before the end of the current cycle
- requests from CNSC staff to do additional inspections beyond the PIP requirements
- additions to outage scope, such as component repairs or replacement, resulting from conducting a planned inspection during the outage

planning envelope *(enveloppe de planification)*
With respect to decommissioning planning, a definable part or area of a facility that is sufficiently removed from, or otherwise independent of, other parts or areas so that the strategic approach to decommissioning that part or area may be planned in a relatively independent manner. For example, processing, administration and waste management areas may all fall within relatively independent decommissioning planning envelopes.

plant configuration *(configuration de la centrale)*
The physical, functional and operational characteristics of the structures, systems and/or components and parts of a facility, including the organizational structure.

plant design envelope *(enveloppe de conception de la centrale)*
See design envelope.

plant experience *(expérience en centrale)*
With respect to certification of a person, the experience gained at a nuclear facility during commissioning, start-up testing or operation that is relevant to the position for which a person seeks certification.

plant parameters *(paramètres de la centrale)*
Parameters that characterize the state of the plant's structures, systems and components, or that are used to actuate a mitigating system. Also called operational parameters.

plant shift supervisor *(chef de quart de centrale)*
The person in a nuclear power plant (NPP) who is responsible for directly supervising its operation. The plant shift supervisor also ensures that operations and maintenance are conducted in accordance with the NPP licence, policies and procedures, and with the applicable requirements specified in federal and provincial acts and regulations, and in other relevant standards and codes. The plant shift supervisor is the NPP management's representative on shift.

plant state *(état de la centrale)*
A configuration of reactor facility components, including the physical and thermodynamic states of the materials and the process fluids in them. **Note:** With respect to reactor facility design, a plant is said to be in one of the following states: normal operation, anticipated operational occurrence, design-basis accident, or beyond-design-basis accident (severe accidents and design extension conditions are a subset of the beyond-design-basis state), as shown in figure 1. Note also that operators of non-power reactors commonly use the term reactor state.

Figure 1: Plant states

<table>
<tr><th colspan="2">Operational states</th><th colspan="4">Accident conditions ➔</th></tr>
<tr><td rowspan="3">Normal operation</td><td rowspan="3">Anticipated operational occurrence</td><td rowspan="3">Design-basis accident</td><td colspan="3">Beyond-design-basis accident ➔</td></tr>
<tr><td colspan="2">Design extension conditions</td><td>Practically eliminated conditions ➔</td></tr>
<tr><td>No severe fuel degradation</td><td colspan="2">Severe accidents ➔</td></tr>
<tr><td colspan="3">Design basis</td><td colspan="2">Design extension</td><td>Not considered as design extension ➔</td></tr>
</table>

Reducing frequency of occurrence ➔

point-kernel technique *(technique des noyaux ponctuels)*
A technique based on an analysis point source solution where the unattenuated flux at any distance r from the source point is proportional to the source rate divided by $4\pi r^2$. Attenuations are treated in an approximate manner through the use of built-in attenuation.

poison *(poison)*
See neutron absorber.

polluter pays *(pollueur-payeur)*
A principle that is based on the concept that users and producers of pollutants and wastes should bear the responsibility for their actions.
Note: This concept – that companies or people that pollute should pay the costs they impose on society – is one of the guiding principles of the *Canadian Environmental Protection Act, 1999*.

pollution prevention *(prévention de la pollution)*
The use of processes, practices, materials, products, energy or substances that avoid or minimize the creation of pollutants and waste and reduce the overall risk to the environment or to human health. (Source: *Canadian Environmental Protection Act, 1999*)
Note: Within pollution prevention, the CNSC also includes, where necessary, the use of environmental controls to prevent or minimize releases to the environment.

poly-energetic source *(source polyénergétique)*
A source that has multiple radiation emissions of unique energies.

portable gauge *(jauge portative)*
See portable nuclear gauge.

portable nuclear gauge *(jauge nucléaire portative)*
A portable radiation device used to measure density, level, thickness or moisture content.

positron emission tomography (PET) *(tomographie par émission de positrons [TEP])*
An imaging procedure that detects gamma rays that are emitted when positrons from a positron-emitting source (such as fluorine-18) collide with electrons in tissue.

possess *(avoir en sa possession)*
For licensing purposes, have the care and control of a nuclear substance(s) or radiation device(s). Note that having possession is distinct from ownership.

possession limit *(limite de possession)*
The total quantity for each unsealed source (nuclear substance) in storage, in use and being held before disposal. **Note:** The maximum quantity in possession, which is specified in the licence for each unsealed source (nuclear substance), may not be exceeded at any time.

post-dryout operation *(fonctionnement après assèchement)*
The high-power operation that continues between the start of fuel sheath dryout until reactor shutdown, under anticipated operational occurrences or accident conditions. **Note:** The automatic shutdown system may shut the reactor down if operator action and/or the reactor regulating system are ineffective.

postulated initiating event (PIE) *(événement initiateur hypothétique [EIH])*
An event identified in a design as leading to either an anticipated operational occurrence or accident conditions. **Note:** Not necessarily an accident itself, a PIE is the event that initiates a sequence that may lead to an operational occurrence, a design-basis accident, or a beyond-design-basis accident, depending on the additional failures that occur. See also initiating event.

potential adversary *(agresseur potentiel)*
Any person – whether or not they have authorized access to a nuclear facility – who might attempt:
(a) the unauthorized removal of Category I, II or III nuclear material; or
(b) sabotage.
(Source: *Nuclear Security Regulations*)

potential intake fraction (PIF) *(fraction d'incorporation potentielle [FIP])*
A dimensionless quantity that defines intake as a fraction of exposure to contamination. A PIF is a function of several factors: release, confinement, dispersability, occupancy. For example, PIF=0 for encapsulated material, as no intake of radioactive nuclear substances into a worker's body can occur.

PPE *(EPI)*
personal protective equipment

PPS *(SPP* or *AEP)*
See physical protection system *or* preferred power supply.

PRA *(EPS)*
probabilistic risk analysis *or* probability risk assessment; see probabilistic safety assessment

practicable *(réalisable)*
Technically feasible and justifiable while taking cost-benefit considerations into account.

practically eliminated *(pratiquement éliminée)*
A way of describing that, for all practical purposes, specified accident conditions are physically impossible or extremely unlikely to occur.

precautionary principle *(principe de la prudence)*
The principle that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. (Sources: *Canadian Environmental Protection Act, 1999* (preamble); *Federal Sustainable Development Act*)
Note 1: In other words, precautions should always be taken to prevent environmental degradation, even in the absence of full scientific certainty – especially when there is a possibility of serious or irreversible damage.
Note 2: The "precautionary principle" is discussed in additional detail in *A Framework for the Application of Precaution in Science-based Decision Making about Risk* [7].

predicted reliability *(fiabilité prévue)*
The predicted probability that a system will meet its success criterion when required to do so. This is calculated using current reliability data.

predictive maintenance *(entretien prédictif)*
A form of preventive maintenance performed continuously or at intervals governed by observed condition to monitor, diagnose or trend the condition indicators of a structure, system or component. Results indicate current and future functional ability or the nature of and schedule for planned maintenance. See also condition-based maintenance.

preferred power supply (PPS) *(alimentation électrique préférée [AEP])*
The power supply from the transmission system or the plant generator to the electrical distribution systems classified as important to safety. This power supply is preferred for safety support functions for normal operations, anticipated operational occurrences, design-basis accidents and design extension conditions.

preliminary decommissioning plan *(plan préliminaire de déclassement)*
An overview of a proposed decommissioning approach that is sufficiently detailed to assure that the proposed approach is, in the light of existing knowledge, technically and financially feasible and appropriate in the interests of health, safety, security and protection of the environment. **Note:** The decommissioning plan defines areas to be decommissioned and the general structure and sequence of the principal decommissioning work packages envisioned. As such, the plan forms the strategic basis for establishing financial guarantees and provides the structural outline of the subsequent detailed decommissioning plan(s).

prescribed *(réglementaire ou réglementé)*
Prescribed by regulation of the Commission. (Source: *Nuclear Safety and Control Act*)
Note: Within the CNSC's mandate, prescribe means to impose authoritatively.

prescribed equipment ***(équipement réglementé)***
The equipment prescribed by section 20. (Source: *General Nuclear Safety and Control Regulations*)
Note 1: Section 20 states that each of the following items is prescribed equipment for the purposes of the NSCA:

- (a) a package, special form radioactive material, low dispersible radioactive material, fissile-excepted radioactive material, radioactive material that has a basic radionuclide value that is not listed in the IAEA Regulations and an instrument or article that has an alternative activity limit for an exempt consignment, as those terms are defined in subsection 1(1) of the *Packaging and Transport of Nuclear Substances Regulations, 2015*;
- (b) a radiation device and a sealed source, as defined in section 1 of the *Nuclear Substances and Radiation Devices Regulations*;
- (c) Class II prescribed equipment, as defined in section 1 of the *Class II Nuclear Facilities and Prescribed Equipment Regulations*; and
- (d) equipment that is capable of being used in the design, production, operation or maintenance of a nuclear weapon or nuclear explosive device.

Note 2: All controlled nuclear equipment is prescribed equipment for the purposes of the NSCA, with respect to the import and export of that equipment. See also controlled nuclear equipment.

prescribed information ***(renseignements réglementés)***
The information prescribed by section 21. (Source: *General Nuclear Safety and Control Regulations*)
Note 1: Section 21 states that information that concerns any of the following, including a record of that information, is prescribed information for the purposes of the *Nuclear Safety and Control Act* (NSCA):

- (a) a nuclear substance that is required for the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device, including the properties of the nuclear substance;
- (b) the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device;
- (c) the security arrangements, security equipment, security systems and security procedures established by a licensee in accordance with the Act, the regulations made under the Act or the licence, and any incident relating to security; and
- (d) the route or schedule for the transport of Category I, II or III nuclear material, as defined in section 1 of the *Nuclear Security Regulations*.

Note 2: All controlled nuclear information is prescribed information for the purposes of the NSCA, with respect to the import and export of that information, unless it is made public in accordance with the NSCA, the regulations made under the NSCA or a licence. See also controlled nuclear information.

prescribed nuclear facilities ***(installations nucléaires réglementées)***
The facilities prescribed by section 19 of the *General Nuclear Safety and Control Regulations*.
Note 1: Section 19 states that the following facilities are prescribed as nuclear facilities for the purpose of paragraph (i) of the definition "nuclear facility" in section 2 of the *Nuclear Safety and Control Act* (NSCA):

- (a) a facility for the management, storage or disposal of waste containing radioactive nuclear substances at which the resident inventory of radioactive nuclear substances contained in the waste is 10^{15} Bq or more;
- (b) a plant for the production of deuterium or deuterium compounds using hydrogen sulphide; and
- (c) a Class II nuclear facility, as defined in section 1 of the *Class II Nuclear Facilities and Prescribed Equipment Regulations*.

Note 2: Bq means becquerels.

pressure boundary *(enveloppe sous pression)*
A boundary of a pressure-retaining structure, system or component of a nuclear or non-nuclear system. **Note:** This definition applies to components subject to registration under applicable boiler and pressure vessel legislation.

pressure boundary degradation (PBD) *(dégradation d'une enveloppe de pression [DEP])*
A change in a pressure boundary's condition that exceeds any relevant limit specified in the applicable design analysis, design codes or standards, or inspection codes or standards.

President *(président)*
The President of the Commission designated under subsection 10(3) of the Act. (Source: *Canadian Nuclear Safety Commission By-laws*)

preventative maintenance *(entretien préventif)*
See preventive maintenance.

prevention *(prévention)*
In the context of severe accident management, measures aimed at averting or delaying the onset of a severe accident.

preventive maintenance *(entretien préventif)*
Actions that detect, preclude or mitigate degradation of a functional structure, system or component to sustain or extend its useful life by controlling degradation and failures to an acceptable level. Preventive maintenance may be periodic, planned or predictive. Also called preventative maintenance.

primary and backup (secondary) trip parameter *(paramètre de déclenchement primaire ou secondaire)*
For CANDU nuclear power plants, the designations for trip parameters, as established through safety analyses. On each shutdown system, the trip parameter predicted to come earliest is the primary trip parameter; the one predicted to come after it is the backup trip parameter.

primary coolant system *(circuit primaire de refroidissement)*
See primary heat transport system.

primary heat transport system (PHTS) *(circuit caloporteur primaire [CCP])*
The system of components in certain nuclear reactors that permit the transfer of heat from the fuel in the reactor to the steam generators or other heat exchangers employing secondary cooling. The PHTS does not necessarily include auxiliary purification and pressure control subsystems. Also called primary coolant system; reactor coolant system.

primary method of criticality control *(méthode principale de contrôle de la criticité)*
A control parameter on which principal reliance is placed in assuring that subcritical conditions are maintained.

primary trip parameter *(paramètre de déclenchement primaire)*
See primary and backup (secondary) trip parameter.

probabilistic risk analysis *(analyse probabiliste de la sûreté)*
See probabilistic safety assessment.

probabilistic risk assessment (PRA) *(étude probabiliste de sûreté [EPS])*
See probabilistic safety assessment.

probabilistic safety analysis *(analyse probabiliste de la sûreté)*
See probabilistic safety assessment.

probabilistic safety assessment (PSA) *(étude probabiliste de sûreté [EPS])*
A comprehensive and integrated assessment of the safety of a facility. The safety assessment considers the probability, progression and consequences of equipment failures or transient conditions to derive numerical estimates that provide a consistent measure of the safety of the facility, as follows:

- a Level 1 PSA identifies and quantifies the sequences of events that may lead to the loss of core structural integrity and massive fuel failures
- a Level 2 PSA starts from the Level 1 results, analyzes the containment behaviour, evaluates the radionuclides released from the failed fuel and quantifies the releases to the environment
- a Level 3 PSA starts from the Level 2 results, analyzes the distribution of radionuclides in the environment and evaluates the resulting effect on public health

This term is the one commonly used in Canada; however, the terms probabilistic risk assessment and probabilistic risk analysis are also used sometimes.

process evaluation *(évaluation de procédé)*
See nuclear criticality process evaluation.

process system *(système fonctionnel)*
A system whose primary function is to support (or contribute to) the production of steam or electricity.

program evaluation *(évaluation du programme)*
An assessment of a program's merit or value. A program evaluation is a systematic process designed to collect data to assess if the program has satisfied its objectives in the most effective and efficient manner.

programmatic failure *(défaillance en matière de programme)*
The occurrence of one or both of the following circumstances:

- failure to establish or comply with a required program or program element as credited in the licensing basis
- aggravated or systemic failure(s) to adhere to applicable procedures

Also called programmatic non-compliance. **Note:** Individual acts of non-compliance with licensee-produced documents that have no immediate or short-term regulatory or safety consequences and that are not indicative of programmatic failures are not considered safety-significant situations or events.

programmatic non-compliance *(non-conformité en matière de programme)*
See programmatic failure.

projection sheath *(tube de guidage)*
For exposure devices, a tube for guiding the sealed source assembly from an exposure container to the working position and having the necessary connections for attachment to the exposure container and to the exposure head, or including the exposure head itself. Also called guide tube.

projection sheath connector *(raccord de la gaine d'injection)*
A component used to attach the source projection sheath to an exposure device. Also called guide tube connector.

PROL *(PERP)*
power reactor operating licence

proponent *(promoteur)*
The person, body, federal authority or government that proposes the carrying out of a designated project.

protected area *(zone protégée)*
An area that is surrounded by a barrier that meets the requirements of section 9. (Source: *Nuclear Security Regulations*)

protective zone *(zone de protection)*
The area beyond an exclusion zone that needs to be considered with respect to implementing emergency measures. Some considerations are population distribution and density, land and water usage, roadways, and consequence and evacuation planning.

proton *(proton)*
A stable subatomic particle that is found in the nucleus of an atom and has a positive electric charge.

proven design *(conception éprouvée)*
A design that shows compliance with accepted engineering standards through a history of experience, testing or some combination of these methods.

PRV *(VDV)*
primary relief valve

PSA *(EPS)*
See probabilistic safety assessment.

PSR *(BPS)*
See periodic safety review.

public disclosure *(divulgation publique)*
The act of making information available to the public.

PWR *(REP)*
pressurized water reactor

pyrophoricity *(pyrophoricité)*
The property of a material or substance that ignites spontaneously when exposed to air or when rubbed or struck.

Q

QM *(GQ)*
See quality management.

qualification *(qualification)*
A recognized level of mastery of task performance in a work-related field, which is normally acquired through successful completion of training. Qualification involves mastery of all the knowledge, skills and safety-related attributes required for successful task performance on the job.

quality management (QM) *(gestion de la qualité [GQ])*
With respect to nuclear criticality safety, a planned and systematic pattern of all means and actions designed to provide adequate confidence that items or services meet specified requirements and will perform satisfactorily in service.

R

R *(R)*
See response.

radiation *(rayonnement)*
The emission by a nuclear substance, the production using a nuclear substance, or the production at a nuclear facility of, an atomic or subatomic particle or electromagnetic wave with sufficient energy for ionization. (Source: *Nuclear Safety and Control Act*)

radiation device *(appareil à rayonnement)*
Means:

- (a) a device that contains more than the exemption quantity of a nuclear substance and that enables the nuclear substance to be used for its radiation properties; and
- (b) a device that contains a radium luminous compound.

(Source: *Nuclear Substances and Radiation Devices Regulations*)

radiation protection SCA *(DSR Radioprotection)*
A safety and control area (SCA) that covers the implementation of a radiation protection program in accordance with the *Radiation Protection Regulations*. The program must ensure that contamination levels and radiation doses received by individuals are monitored, controlled and maintained ALARA. This SCA is one of the 14 within the CNSC SCA Framework.

radiation safety officer (RSO) *(responsable de la radioprotection [RRP])*
A radiation safety specialist who implements and administers a radiation safety program on a day-to-day basis. **Note:** As specified in subsection 15.04 of the *Class II Nuclear Facilities and Prescribed Equipment Regulations*, the Commission or a designated officer may certify a person for the position of radiation safety officer if the person has successfully completed an examination that is recognized by the Commission and, in the opinion of the Commission or designated officer, the person is capable of performing the duties of the position.

radiation survey meter *(radiamètre)*
An instrument that is capable of measuring radiation dose rates. (Sources: *Class II Nuclear Facilities and Prescribed Equipment Regulations*; *Nuclear Substances and Radiation Devices Regulations*)

radiation weighting factor (w_R) *(facteur de pondération radiologique [w_R])*
A number by which the absorbed dose in a tissue or organ is multiplied to reflect the relative biological effectiveness (harm) of the radiation in inducing stochastic effects at low doses, the result being the equivalent dose.

radioactive atmosphere *(atmosphère radioactive)*
See dosimetry types.

radioactive decay *(désintégration radioactive)*
The spontaneous transformation of one radioisotope into one or more different isotopes (known as decay products or daughter products), accompanied by a decrease in radioactivity (compared to the parent material). This transformation takes place over a defined period of time (known as a half-life), as a result of electron capture; fission; or the emission of alpha particles, beta particles, or photons (gamma radiation or X-rays) from the nucleus of an unstable atom. Each isotope in the sequence (known as a decay chain) decays to the next until it forms a stable, less energetic end product. In addition, radioactive decay may refer to gamma-ray and conversion electron emission, which only reduces the excitation energy of the nucleus.

radioactive material *(matière radioactive)*
A nuclear substance that is a radioactive material, as defined in the IAEA Regulations.
(Source: *Packaging and Transport of Nuclear Substances Regulations, 2015***)**

Note: The IAEA Regulations identify this substance as any material containing radionuclides where both the activity concentration and the total activity in a consignment exceed the values further specified by the IAEA Regulations.

OR

For purposes of nuclear security, any material that emits one or more types of ionizing radiation, such as alpha or beta particles, neutrons or gamma rays.

radioactive source teletherapy machine *(appareil de téléthérapie à source radioactive)*
A teletherapy machine that is designed to deliver doses of radiation produced by a nuclear substance.
(Sources: *General Nuclear Safety and Control Regulations*; *Class II Nuclear Facilities and Prescribed Equipment Regulations***)**

radioactive waste *(déchets radioactifs)*
For the purposes of waste management, any material (liquid, gaseous, or solid) that contains a radioactive nuclear substance, as defined in section 2 of the *Nuclear Safety and Control Act*, and which the owner has declared to be waste. In addition to containing nuclear substances, radioactive waste may also contain non-radioactive hazardous substances, as defined in section 1 of the *General Nuclear Safety and Control Regulations*.

radioactivity *(radioactivité)*
The spontaneous transformation of an atom's nucleus by expulsion of particles. Radioactivity can be accompanied by electromagnetic radiation. Solids, liquids or gases can be radioactive.

radiography camera *(caméra de gammagraphie)*
See exposure container.

radioiodine *(iode radioactif)*
A substance containing radioactive iodine in a chemical form that has a metabolic pathway similar to iodide, such as inorganic compounds and metabolic forms of organic iodine that are broken down in a living organism. Some examples are the radioisotopes iodine-125 and iodine-131.

radioiodine bioassay *(essai biologique visant à détecter l'iode radioactif)*
The measurement of the amount of radioiodine in the body, for the purpose of finding out the associated committed effective dose.

radioisotope *(radio-isotope)*
See isotope.

radioisotope laboratory *(laboratoire de radio-isotopes)*
See nuclear substance laboratory.

radionuclide *(radionucléide)*
A material with an unstable atomic nucleus that spontaneously decays or disintegrates, producing radiation. Nuclei are distinguished by their mass and atomic number.

radon decay product *(produit de désintégration du radon)*
See radon progeny.

radon progeny *(produit de filiation du radon)*
The following radioactive decay products of radon-222: bismuth-214, lead-214, polonium-214 and polonium-218. (Sources: *Radiation Protection Regulations*; *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: These nuclear substances are emitted when radon gas undergoes radioactive decay. Polonium-218 and polonium-214 emit alpha particles and are responsible for the bulk of the dose to the respiratory tract resulting from inhaled radon. All four of these short-lived radon progeny have half-lives of less than 30 minutes. Also known as radon decay product.

Raschig ring *(anneau de Raschig)*
A small, hollow, borosilicate-glass cylinder having approximately equal length and diameter.

RAW *(RAR)*
risk achievement worth; see importance measures

RCA *(analyse des causes fondamentales)*
See root-cause analysis.

RCM *(MAF)*
See reliability-centred maintenance.

RCS *(SRR)*
reactor coolant system

RDR *(RRR)*
risk decrease ratio; see importance measures

reactivity *(réactivité)*
The quantity $(k_{eff} - 1) / k_{eff}$, where k_{eff} is the effective neutron multiplication factor. The reactivity of a subcritical assembly is a negative quantity indicating the degree of subcriticality. The reactivity of a critical assembly is zero.

reactivity addition *(addition de réactivité)*
A modification of a fissile assembly that results in a positive incremental change of reactivity.

reactor containment *(confinement du réacteur)*
See containment.

reactor coolant system *(système de refroidissement du coeur)*
See primary heat transport system.

reactor facility *(installation dotée d'un réacteur)*
Any fission or fusion reactor, including structures, systems and components:

- that are necessary for shutting down the reactor, ensuring that it can be kept in a safe shutdown state
- that may contain radioactive material and which cannot be reliably isolated from the reactor
- whose failure can lead to a limiting accident for the reactor
- that are tightly integrated into the operation of the nuclear facility
- that are needed to maintain security and safeguards

reactor operator *(opérateur de réacteur)*
The person in a reactor facility who is responsible for operating and monitoring the systems of a reactor unit, in accordance with the licence, policies and procedures. Also called authorized nuclear operator; control room operator.

reactor state *(état du réacteur)*
See plant state.

reactor trip *(arrêt automatique du réacteur)*
A reduction in reactor power initiated by any of a reactor's safety circuits. A reactor trip rapidly shuts down the reactor in response to the detection of certain abnormal and potentially dangerous conditions or by operator decision.

re-batching *(remise en lots)*
With respect to nuclear material accounting, accounting for changes to the physical inventory (such as chemical and physical form, irradiation status) of an individual batch of nuclear material.

receptor *(récepteur)*
Any person or environmental entity that is exposed to radiation, a hazardous substance, or both. A receptor is usually an organism or a population, but it could also be an abiotic entity such as surface water or sediment.

recognized educational institution *(institution reconnue)*
A Canadian educational institution with a federal or provincial charter, or a foreign educational institution whose diplomas are accepted by a recognized Canadian institution or university.

recognized university *(université reconnue)*
A Canadian university with a federal or provincial charter, or a foreign university whose degrees are accepted by a recognized Canadian university.

record *(document)*
Has the meaning assigned to that word by section 3 of the *Access to Information Act*. **(Source:** *Nuclear Safety and Control Act***)**
Note: The *Access to Information Act* states that a record means any documentary material, regardless of medium or form.

redundancy *(redondance)*
The provision of alternative (identical or diverse) structures, systems and components (SSCs), so that any one can perform the required function regardless of the state of operation or failure of any other SSC.

reference value *(valeur de référence)*
See conventionally true value.

refresher training *(formation de recyclage)*
See continuing training.

region *(région)*
With respect to site evaluation for a new nuclear facility, a specific area to be studied. The spatial characteristics of a region will vary for each hazard being studied. For example, the region being investigated for groundwater effects of a nuclear power plant may be substantially different from the region being investigated for effects due to atmospheric releases.

registered user *(usager inscrit)*
A person who has received confirmation under subsection 19(3) from the Commission that their use of a package has been registered. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

regulation *(règlement)*
The "operational" part of a law. In Canada, a regulation is made under a specified Act, the means by which Parliament makes laws. A regulation commonly deals with matters such as what is meant by certain terms used in the Act, procedures and processes that must be followed or standards that must be met in order to comply with the Act. Often referred to as delegated legislation or subordinate legislation, a regulation is not made by Parliament but by someone to whom Parliament has delegated the authority to make it. The Commission has the authority under the *Nuclear Safety and Control Act* (NSCA) to make regulations, with the approval of the Governor in Council, for matters related to its mandate.

regulatory scrutiny *(contrôle réglementaire)*
A regulator's enforcement option to focus efforts on specific areas of non-compliance. This scrutiny may include:

- increasing the frequency of inspections or of meetings with the licensee
- adding more reporting requirements
- broadening the scope of inspections
- modifying inspection techniques/strategies (for example, root-cause analysis, augmented inspections)

regulatory undertaking *(travail réglementaire)*
Outage work required by a code or a standard that is referenced in a licence (mandatory work) or other work that was committed by the licensee to the CNSC through formal correspondence (committed work) including:

- periodic inspection program (PIP) inspections in the last outage of a PIP cycle
- PIP work that is required to allow the extension of an existing disposition that will expire before the next planned outage

related experience *(expérience pertinente)*
For certification purposes, the experience a person has gained in performing duties related to those of the position being sought.

reliability *(fiabilité)*
The ability of a structure, system or component to perform, in accordance with its defined specifications, its required function under given conditions for a defined time period or upon demand.

reliability-centred maintenance (RCM) *(entretien axé sur la fiabilité)*
A series of orderly steps for identifying system and subsystem functions, functional failures and dominant failure modes; prioritizing them; and selecting applicable and effective preventive maintenance tasks to address the classified failure modes.

reliability monitoring *(surveillance de la fiabilité)*
Direct monitoring of reliability parameters of a structure, system or component (for example, failure frequency, downtime due to the maintenance activities, or outage rate).

reliability targets *(objectifs de fiabilité)*
The reliability goals to be achieved by the plant systems. The purpose of these targets is to compare them with actual plant performance, in order to identify deviations from expected performance.

remote control *(télécommande)*
A mechanism that enables the sealed source assembly to be moved to and from a working position by an operator while at a safe distance from the exposure device. **Note:** The remote control includes the control mechanism and, where applicable, the control cable, control cable sheath and necessary connections and attachments. Also called control mechanism; cranking mechanism; drive mechanism.

removal site *(site d'extraction)*
A place at which uranium is removed from its place of natural deposit by means of surface activities for the purpose of evaluating a potential ore body. (Source: *Uranium Mines and Mills Regulations*)

repair *(réparation)*
Any activity that allows a failed or degraded structure, system or component to function as per original design; repair may be permanent or temporary.

replacement *(remplacement)*
For reactor facilities, the substitution of a structure, system or component (SSC) with an identical SSC or with an SSC that has been approved as equivalent through an equivalency process.

representative nuclear criticality accident *(accident de criticité nucléaire représentatif)*
A postulated nuclear criticality accident that is used to demonstrate compliance with the CNSC criticality safety requirements on the mitigation of nuclear criticality accident consequences.

requalification training *(formation de requalification)*
See continuing training.

residual heat *(chaleur résiduelle)*
The sum of heat originating from radioactive decay, fission in the fuel in the shutdown state, and the heat stored in structures, systems and components.

response (R) *(réponse [R])*
With respect to dosimetry, the result of a dose measurement under defined conditions divided by the conventionally true dose that would be received under those conditions.

OR

See emergency response.

response unit *(unité d'intervention)*
With respect to nuclear security, a team that comprises members of the onsite nuclear response force at a nuclear facility and is assigned to mount an effective intervention there.

responsible designer *(concepteur responsable)*
An organization to which the design authority has assigned responsibility for the design of specific parts of a nuclear facility.

responsible health physicist *(spécialiste principal en radioprotection)*
See senior health physicist.

restricted area *(zone à accès restreint)*
An area to which public access is controlled in order to protect individuals from exposure to radiation and radioactive materials. Also called controlled area.

retained waste *(déchets conservés)*
With respect to nuclear material accounting, a subset of Group 1A nuclear material that has been identified as unrecoverable and is stored in the material balance area. This Group 1A nuclear material may be transferred to retained waste upon approval of CNSC staff. After transfer, the only reporting requirement is to provide an inventory listing upon request.

RIR *(RAR)*
risk increase ratio; see importance measures

risk *(risque)*
The chance of injury or loss, defined as a measure of the probability and severity of an adverse effect (consequence) to health, property, the environment or other things of value; mathematically, risk is the probability of occurrence (likelihood) of an event multiplied by its magnitude (severity).

risk achievement worth (RAW) *(rapport d'augmentation du risque [RAR])*
See importance measures.

risk assessment *(évaluation du risque)*
An assessment of the radiological risks associated with normal operation and potential accidents involving a nuclear substance or licensed activity. A risk assessment will normally include consequence assessment and associated probabilities.

risk decrease ratio (RDR) *(rapport de réduction du risque [RRR])*
See importance measures.

risk increase ratio (RIR) *(rapport d'augmentation du risque [RAR])*
See importance measures.

risk-informed approach *(approche en fonction du risque)*
An approach to decision making that includes risk insights as one of the factors in determining a course of action.

risk reduction worth (RRW) *(rapport de réduction du risque [RRR])*
See importance measures.

risk-significant radioactive sources *(sources radioactives à risque élevé)*
Any radionuclide identified as a Category 1 or Category 2 radioactive source in table 1 of annex I of the International Atomic Energy Agency's *Code of Conduct on the Safety and Security of Radioactive Sources* [8].

root-cause analysis (RCA) *(analyse des causes fondamentales)*
An objective, structured, systematic and comprehensive analysis for determining the underlying causes of a situation or event.

routine bioassay *(essai biologique courant)*
Any bioassay that involves collecting and analyzing samples or taking measurements on a body at scheduled intervals, or at predetermined times, during normal operations.

RPPE *(EPIR)*
radiation personal protective equipment

RRW *(RRR)*
risk reduction worth; see importance measures

RSDS *(FSR)*
radiation safety data sheets (associated with the Workplace Hazardous Materials Information System)

RSO *(RRP)*
See radiation safety officer.

S

sabotage *(sabotage)*
Any deliberate act or omission, directed against a nuclear facility or nuclear substances, that:
(a) endangers or is likely to endanger the health and safety of any person; or
(b) results or is likely to result in contamination of the environment.
(Source: *Nuclear Security Regulations*)

SAD *(distance depuis l'axe de la source)*
source axis distance

safeguarded nuclear material *(matières nucléaires visées par les garanties)*
Source material and special fissionable material under IAEA Safeguards (Safeguard Agreement between Canada and the IAEA (INFCIRC/164), Subsidiary Arrangements, and Additional Protocol INFCIRC/164/Add 1) that have reached the stage of the nuclear fuel cycle, as described in article 34(c), of suitability for fuel fabrication or for isotopic enrichment. **Note:** Nuclear material at or beyond this stage is subject to all safeguards procedures specified in the Safeguards Agreement. In Canada, this is also called Group 1 nuclear material.

safeguards *(garanties)*
A verification system that is established in accordance with a safeguards agreement. (Sources: *General Nuclear Safety and Control Regulations*; *Class I Nuclear Facilities Regulations*)

safeguards agreement *(accord relatif aux garanties)*
Means
(a) the IAEA Agreement and any arrangement between Canada and the IAEA made under that agreement; and
(b) any agreement to which Canada is a party for the establishment in Canada of a verification system in respect of nuclear substances, prescribed equipment or prescribed information, and any arrangements made under such an agreement.
(Sources: *General Nuclear Safety and Control Regulations*; *Class I Nuclear Facilities Regulations*)

safeguards and non-proliferation SCA *(DSR Garanties et non-prolifération)*
A safety and control area (SCA) that covers the programs and activities required for the successful implementation of the obligations arising from the Canada/International Atomic Energy Agency (IAEA) safeguards agreements, as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons*. This SCA is one of the 14 within the CNSC SCA Framework.

safeguards equipment *(équipement de garanties)*
Equipment that is used in accordance with a safeguards agreement. (Source: *General Nuclear Safety and Control Regulations*)

safe operating envelope (SOE) *(paramètres d'exploitation sûre [PES])*
The set of limits and conditions within which a nuclear power plant must be operated to ensure compliance with the safety analysis upon which the reactor operation is licensed and that can be monitored by or on behalf of the operator and can be controlled by the operator. See also operational limits and conditions.

safe shutdown state (SSS) *(état d'arrêt sûr)*
A state in which a facility is not operational and the fundamental safety functions can be ensured and maintained stable for a long time. For nuclear reactors, a safe shutdown state is characterized by reactor subcriticality and the presence of core cooling. For all facilities, radioactive discharges are within limits, and the integrity of the barriers to releases is maintained. See also guaranteed shutdown state; shutdown state.

safety analysis *(analyse de la sûreté)*
A systematic evaluation of the potential hazards that is associated with the conduct of a proposed activity or facility and that considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards.

OR

With respect to deterministic safety analysis, analysis by means of appropriate analytical tools that confirms the design basis for the items important to safety and ensures that the overall nuclear facility design is capable of meeting specified acceptance criteria.

safety analysis SCA *(DSR Analyse de la sûreté)*
A safety and control area (SCA) that covers maintenance of the safety analysis that supports the overall safety case for the facility. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards. This SCA is one of the 14 within the CNSC SCA Framework.

safety and control area (SCA) *(domaine de sûreté et de réglementation [DSR])*
A technical topic used by the CNSC to assess, review, verify and report on regulatory requirements and performance across all regulated facilities and activities. The SCAs cover:

- management system
- human performance management
- operating performance
- safety analysis
- physical design
- fitness for service
- radiation protection
- conventional health and safety

- environmental protection
- emergency management and fire protection
- waste management
- security
- safeguards and non-proliferation
- packaging and transport

safety assessment *(évaluation de la sûreté)*
An assessment of all aspects relevant to safety of the siting, design, construction, commissioning, operation or decommissioning of a nuclear facility.

safety case *(dossier de sûreté)*
An integrated collection of arguments and evidence to demonstrate the safety of a facility and the meeting of all applicable regulatory requirements. A safety case will normally include a safety assessment, but could also typically include information (such as supporting evidence and reasoning) on the robustness and reliability of the safety assessment and the assumptions made therein.

safety culture *(culture de sûreté)*
The characteristics of a work environment, such as values, rules and common understandings, that influence worker perceptions and attitudes about the importance that the organization places on safety.

safety function *(fonction de sûreté)*
A specific purpose that a structure, system or component must accomplish for safety, including those functions necessary to prevent accident conditions and to mitigate their consequences.

safety goal *(objectif de sûreté)*
The objective of protecting reactor facility staff, the public and the environment from harm, by establishing and maintaining effective defences against the release of radiological hazards. For example, a nuclear power plant's probabilistic safety goals can be expressed in terms of frequency of severe core damage or of radionuclide releases.

safety group *(groupe de sûreté)*
The set of structures, systems and components designated to perform all actions required for a particular postulated initiating event, and to ensure that the specified limits for anticipated operational occurrences and design-basis accidents are not exceeded. The safety group may include certain safety and safety support systems and any interacting process system.

safety improvements *(améliorations de la sûreté)*
Measures taken that result in more effective implementation of the safety objectives of a nuclear power plant.

safety indicator *(indicateur de sûreté)*
A quantity used in assessments to measure the performance of provisions for protection and safety. Safety indicators can illustrate calculations of dose or risk quantities used to show the possible magnitude of doses or risks for comparison with criteria, or of other quantities (such as concentrations or fluxes of radionuclides or hazardous substances) that are considered to more reliably indicate impact and which can be compared with protective limits set by legislation or regulation.

safety limits *(limites de sûreté)*
Limits on operational parameters within which a nuclear facility has been shown to be safe.

safety margin *(marge de sûreté)*
A margin to the value of a safety variable for a barrier or system at which damage or loss would occur. Safety margins are considered for those systems and barriers whose failure could contribute to radiological releases.

safety performance indicator (SPI) *(indicateur de rendement en matière de sûreté)*
Data that is sensitive to and/or signals changes in the safety performance of systems or programs that maintain the licensing basis of a nuclear facility.

safety-related attributes *(attributs liés à la sûreté)*
Observable attributes of safety that reflect an organization's safety-related values and behaviours that each worker is expected to exhibit consistently on the job.

safety-related systems (SRS) *(systèmes liés à la sûreté [SRS])*
As defined in the CSA Group publication CSA-N285.0-08, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants* [9]:

> those systems and their related components and supports that, by failing to perform in accordance with the design intent, have the potential to impact the radiological safety of the public or nuclear power plant personnel. Those systems and their components involve
>
> - the regulation (including controlled startup and shutdown) and cooling of the reactor core under normal conditions (including all normal operating and shutdown conditions)
> - the regulation, shutdown and cooling of the reactor core under anticipated transient conditions and accident conditions, and the maintenance of the reactor core in a safe shutdown state for an extended period following such conditions
> - limiting the release of radioactive material and the exposure of plant personnel and/or the public to meet the criteria established by the licensing authority with respect to radiation exposure during and following normal, anticipated transient conditions and accident conditions
>
> **Notes:**
>
> 1) The term "safety-related system" covers a broad range of systems, from those having very important safety functions to those with a less direct effect on safety. The larger the potential radiological safety effect due to system failure, the stronger the "safety-related" connotation.
> 2) "Safety-related" also applies to certain activities associated with the design, manufacture, construction, commissioning, and operation of safety-related systems and to other activities that can similarly affect the radiological safety of the public or plant personnel, such as environmental and effluent monitoring, radiation protection and dosimetry, and radioactive material handling (including waste management). The larger the potential radiological safety effect associated with the performance of the activity, the stronger the "safety-related" connotation.
> 3) Certain failures of other systems can adversely affect a safety-related system (e.g., through flooding or mechanical damage).

See also systems important to safety.

safety significance *(importance pour la sûreté)*
The significance of a situation, event or issue with respect to the impact on meeting the nuclear safety objectives as defined by the IAEA in document SF-1, *Fundamental Safety Principles* [10]. In general, a situation, event or issue has safety significance if it denotes a deviation from the safety case accepted in the licence, in a direction detrimental to safety, such as but not limited to:

- reducing margins to (or exceeding) the accepted limits
- increasing risk to the health, safety and security of persons and the environment
- impairing (by various degrees) the safety systems or the safety functions for accident mitigation

- reducing defence in depth
- causing radioactive releases and spills of hazardous substances and/or injuries to workers or the public

safety support system *(système de soutien en matière de sûreté)*
A system designed to support the operation of one or more safety systems.

safety system *(système de sûreté)*
A system provided to ensure the safe shutdown of a nuclear reactor or the residual heat removal from the core, or to limit the consequences of anticipated operational occurrences and design-basis accidents.

safety system setting *(réglage des systèmes de sûreté)*
The setpoint for a parameter for which a safety system is automatically actuated in the event of anticipated operational occurrences or accident conditions, in order to prevent one or more safety limits from being exceeded.

SAM *(GAG)*
See severe accident management (SAM) program.

SAMG *(LDGAG)*
severe accident management guidelines; see severe accident management (SAM) program

SAT *(ASF)*
See systematic approach to training.

SBO *(PET)*
See station blackout.

SCA *(DSR)*
See safety and control area.

scattered radiation *(rayonnement diffusé)*
See scatter radiation.

scatter radiation *(rayonnement diffusé)*
Radiation that, during passage through a substance, has been changed in direction. It may also have been modified by a decrease in energy. Also called scattered radiation.

SCDF *(FDGC)*
severe core damage frequency

SCO *(SCO)*
Has the meaning assigned by the definition "surface contaminated object (SCO)" in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

scoping assessment *(évaluation d'établissement de la portée)*
An assessment that uses simplified mathematical models to quickly estimate the likely results that will be predicted by more detailed assessment models. A scoping assessment can also be used to assess at a high level whether the model sensitivity to changes in input values is realistic.

SCR *(SCA)*
secondary control room

screening (thyroid) *(dépistage [thyroïde])*
See thyroid screening.

SD *(arrêt)*
shutdown

SDCS *(CRA)*
shutdown cooling system

sealed source *(source scellée)*
A radioactive nuclear substance in a sealed capsule or in a cover to which the substance is bonded, where the capsule or cover is strong enough to prevent contact with or the dispersion of the substance under the conditions for which the capsule or cover is designed. (Sources: *Class I Nuclear Facilities Regulations*; *Class II Nuclear Facilities and Prescribed Equipment Regulations*; *Nuclear Substances and Radiation Devices Regulations*)

sealed source assembly *(assemblage de source scellée)*
Means a sealed source that is designed to be used in an exposure device, and includes the components that are permanently attached to the sealed source. (Source: *Nuclear Substances and Radiation Devices Regulations*)

secondary trip parameter *(paramètre de déclenchement secondaire)*
See primary and backup (secondary) trip parameter.

Secretary *(secrétaire)*
The Secretary of the Commission. (Sources: *Canadian Nuclear Safety Commission Rules of Procedure*; *Canadian Nuclear Safety Commission By-laws*)

Note: The *Canadian Nuclear Safety Commission Rules of Procedure* further state that the Secretary is appointed under section 16 of the NSCA.

secured position *(position de blocage)*
The condition of an exposure container and sealed source assembly when the sealed source is fully shielded and its movement is restricted within the exposure container. **Note:** In the secured position, the exposure container need not be locked.

security interview *(entrevue de sécurité)*
An interview conducted by a qualified investigator representing a licensee, in which information is collected to confirm or deny adverse information.

security monitoring room (SMR) *(local de surveillance)*
A security monitoring room referred to in section 15. (Source: *Nuclear Security Regulations*)
Note: Section 15 explains that this room comprises video surveillance and recording devices for security purposes.

security SCA *(DSR Sécurité)*
A safety and control area (SCA) that covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for the facility or activity. This SCA is one of the 14 within the CNSC SCA Framework.

seiche *(seiche)*
An oscillation of an enclosed or semi-enclosed body of water in response to an atmospheric, oceanographic or seismic disturbing force. In the Great Lakes area, a seiche could mean any sudden rise in the water of a harbor or a lake, whether or not it is oscillatory.

senior health physicist (SHP) *(spécialiste principal en radioprotection)*
The person in a nuclear facility who is responsible for interpreting the regulations, policies and procedures that apply to radiation protection and for providing procedure-related approvals where required. Also called authorized health physicist; responsible health physicist.

sensitivity analysis *(analyse de sensibilité)*
In a **deterministic safety analysis**, a quantitative examination of how the behaviour of a system varies with change (usually in the values of the governing parameters). In a **probabilistic safety assessment**, the process of assessing the impact that a variation in the probability of an event or a change in a modelling assumption would have on the probabilistic safety assessment results.

serious illness or injury *(maladie ou blessure grave)*
With respect to reporting requirements, an injury or illness incurred, or possibly incurred, as a result of the licensed activity. This term includes an injury or illness resulting in lost time or lost days beyond the date of injury and is any of the following conditions:

- requires hospitalization
- places life in jeopardy
- produces unconsciousness
- results in substantial loss of blood
- involves the fracture of a leg or arm, but not a finger or toe
- involves the amputation of a leg, arm, hand, or foot, but not a finger or toe
- consists of burns to a major portion of the body
- causes the loss of sight in an eye
- causes paralysis
- causes permanent hearing impairment

Note: "Possibly incurred" refers to the cause of the injury and not the potential for injury. A death is classified as a fatality, not as a serious injury.

serious process failure *(défaillance grave de système fonctionnel)*
With respect to reporting requirements for CANDU nuclear power plants (NPPs), a failure of a process structure, system or component that leads to a systematic fuel failure or a significant release from the NPP or that could lead, in the absence of action by any special safety system, to a systematic fuel failure or a significant release from the NPP.

service life *(durée de vie)*
The period from initial operation to final withdrawal from service of a structure, system or component.

servicing *(entretien)*
In respect of radiation devices, means any maintenance of a device, including installation, repair or dismantling, other than maintenance that
(a) constitutes routine operating procedures as indicated in the manufacturer's operating manual for the device; or
(b) is authorized in the licence issued in respect of the possession or use of the device.
(Source: *Nuclear Substances and Radiation Devices Regulations*)
OR
In respect of Class II prescribed equipment, means any maintenance of the equipment, including installation, repair or dismantling, other than any installation, repair or dismantling that constitutes routine operating procedures
(a) as indicated in the manufacturer's operating manual for the equipment; or
(b) as authorized in the licence issued in respect of the possession or use of the equipment.
(Source: *Class II Nuclear Facilities and Prescribed Equipment Regulations*)
Note: Sealed source installation or replacement, as well as any repair that could expose the sealed source, reduce the shielding around the sealed source, or affect the drive control for radiotherapy, is considered as servicing.

servicing, installation and dismantling of devices containing radioisotopes *(entretien, installation et démontage d'appareils contenant des radio-isotopes)*
The possession of radiation devices for the purpose of servicing, installation or dismantling. The term is used as a licence use type.

setback *(baisse contrôlée de puissance [BCP])*
With respect to CANDU nuclear power plants, a system designed to automatically reduce reactor power at a slow rate if a problem occurs. The setback system is part of the reactor-regulating system.

severe accident *(accident grave)*
An accident more severe than a design-basis accident and involving severe fuel degradation in the reactor core or wet storage bay.

severe accident management guidelines (SAMG) *(lignes directrices pour la gestion des accidents graves [LDGAG])*
See severe accident management (SAM) program.

severe accident management (SAM) program *(programme de gestion des accidents graves [GAG])*
A program that establishes both of the following:
- the actions to be taken to prevent severe damage to the reactor core, to mitigate the consequences of the core damage (should it occur), and to achieve a safe, stable state of the reactor over the long term
- the preparatory measures necessary for implementation of such actions

SGECS *(SRUGV)*
steam generator emergency cooling system

shift manager (SM) *(gestionnaire de quart [GQ])*
See plant shift supervisor.

shift supervisor (SS) *(chef de quart [CQ])*
See plant shift supervisor.

shipper/receiver difference *(écart entre expéditeur et destinataire)*
With respect to nuclear material accounting, the difference between the quantities of nuclear material in a batch, as stated by the shipping material balance area (MBA) and as measured at the receiving MBA.

SHP *(spécialiste principal en radioprotection)*
See senior health physicist.

shutdown state *(état d'arrêt)*
A subcritical reactor state with a defined margin to prevent a return to criticality without external actions. See also guaranteed shutdown state; safe shutdown state.

shutoff rod (SOR) *(barre d'arrêt [BA])*
One of a set of neutron-absorbing rods that are inserted into a reactor core when needed to stop (shut off or shut down) the nuclear reactor.

shutter *(obturateur)*
A system inside a radiation device, between the shielded and unshielded position of the sealed source, that may be operated manually, electrically or pneumatically.

SI *(SI)*
International System of Units (Système international d'unités)

sievert (Sv) *(sievert [Sv])*
The International System of Units (SI) unit of equivalent dose and effective dose, equal to 1 joule/kilogram.

significant release *(rejet important)*
A release of radioactive material that results in an effective dose, received by or committed to a typical member of the critical group, in excess of 0.5 millisievert.

signing authority *(signataire autorisé)*
A person designated by the applicant authority to act on behalf of the applicant in communications with the CNSC.

simple administrative (nuclear) criticality safety control *(contrôle administratif simple de sûreté-criticité [nucléaire])*
See administrative (nuclear) criticality safety control.

simulator *(simulateur)*
See full scope simulator.

single failure *(défaillance unique)*
A failure that results in the loss of capability of a component to perform its intended function(s), and any consequential failure(s) resulting from that single failure.

single-failure criterion *(critère de défaillance unique)*
The criterion used to determine whether a system is capable of performing its function in the presence of a single failure.

SIS *(SIS)*
See systems important to safety.

site *(emplacement)*
With respect to nuclear facilities, the area within an exclusion zone where one or more nuclear facilities and all associated support structures and systems are located. See also exclusion zone.

site characterization *(caractérisation du site)*
The distinguishing characteristics, qualities, physical features and environment of the piece of land on which a nuclear facility or activity is located.

site personnel *(personnel sur le site)*
All persons working on the site of a nuclear facility, either permanently or temporarily.

siting *(choix de l'emplacement)*
The process of selecting a suitable site for a facility, including appropriate assessment and definition of the related design bases.

situation *(situation)*
Conditions, circumstances or configurations that occur, are discovered or that may lead to an event. This definition applies to event reporting.

skill *(compétence)*
A mental and/or physical activity that requires a measurable degree of proficiency. The terms "skill" and "ability" are often used interchangeably.

skin *(peau)*
The layer of cells within the skin that are 7 mg/cm^2 below the surface. (Source: *Radiation Protection Regulations*)

slapdown *(impact secondaire)*
The secondary impact resulting from a package initially impacting on a corner or an edge.

SM *(GQ)*
shift manager; see plant shift supervisor

small reactor *(petit réacteur)*
A reactor with a power level less than approximately 200 megawatts thermal. Some examples of small-reactor use are research, isotope production, steam generation or electricity production.

smart buyer *(acheteur éclairé)*
An organization that has a clear understanding and knowledge of the product or service being supplied. In the context of nuclear safety, the organization knows what is required, fully understands the need for a vendor's services, specifies requirements, supervises the work and technically reviews the output before, during and after implementation.

SMR *(version de maintenance systématique [VMS]* or *local de surveillance)*
scheduled maintenance release
OR
See security monitoring room.

SNF *(combustible nucléaire épuisé)*
spent nuclear fuel; see used nuclear fuel

SOE *(PES)*
See safe operating envelope.

soluble neutron absorber *(absorbeur de neutrons soluble)*
Any neutron absorber easily dispersed in liquid, solution or suspension, used:

- specifically to reduce the reactivity of a system and for which reactivity credit is taken in the nuclear criticality safety evaluation of the system
  or
- to compensate for excess reactivity in the reactor core during operation or when the reactor is shut down

solution *(solution)*
With respect to nuclear criticality safety, liquid containing dissolved material or a suspension of that material in the liquid. This includes aqueous (water-based) solutions but excludes those where the hydrogen is replaced by either deuterium or tritium.

SOR *(BA)*
See shutoff rod.

somatic effect *(effet somatique)*
A radiation-induced health effect that occurs in the exposed person.

source changer *(changeur de source)*
An apparatus used to store, transport and exchange sealed source assemblies for use in exposure devices.

source holder *(porte-source)*
For exposure devices, a holder, or attachment device, by means of which a sealed source or simulated source can be directly included in the exposure container or fitted at the end of the control cable.
Note: A source holder may be either an integral part of the sealed source assembly or a part that can be dismantled for replacement of the sealed source.

source material *(matière brute)*
The following source materials in any form, including ore, concentrate, compound, metal or alloy, or incorporated in any substance, other than medicinals, and in which the concentration of source material is greater than 0.05 weight %:
(a) uranium that contains the mixture of isotopes that occurs in nature;
(b) uranium that is depleted in the isotope 235; and
(c) thorium.
Note: [The list above] does not include:
(a) source material occurring as contaminants in laundry, packaging, shielding or equipment; or
(b) depleted uranium used as shielding for Class II prescribed equipment, within the meaning of section 1 of the *Class II Nuclear Facilities and Prescribed Equipment Regulations*, for radiation devices or for transport packaging.
(Source: *Nuclear Non-proliferation Import and Export Control Regulations* (Schedule A))
Note: Ore concentrate is considered to be source material. With respect to nuclear material accounting, the term "source material" is not interpreted as applying to ore or ore residue.

source stop *(tête d'exposition)*
See exposure head.

source term *(terme source)*
The amount and isotopic composition of material released (or postulated to be released) from a nuclear facility.

sparging *(barbotage)*
The act of flowing air, gas or steam through liquid in a vessel.

special bioassay *(essai biologique spécial)*
See non-routine bioassay.

special fissionable material *(produits fissiles spéciaux)*
[A]s follows:
(a) plutonium and all isotopes, alloys and compounds and any material that contains any of these substances; and
(b) uranium-233, uranium enriched in the isotopes 235 or 233 and all alloys and compounds and any material that contains any of these substances.
Note: [The list above] does not include
(a) special fissionable material occurring as contaminants in laundry, packaging, shielding or equipment;
(b) special fissionable material used as a sensing component in instruments in quantities of four effective grams or less; or
(c) plutonium-238 that is contained in heart pacemakers.
(Source: *Nuclear Non-proliferation Import and Export Control Regulations* (Schedule A))
Note: With respect to nuclear material accounting, special fissionable material includes Group 1 nuclear material that contains plutonium-239, uranium-233, uranium enriched in the isotopes 235 or 233, and any material that contains any of the foregoing. Special fissionable material does not include source material.

special form radioactive material *(matière radioactive sous forme spéciale)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: This material takes the form of an indispersible solid radioactive material or a sealed capsule containing radioactive material that meets the requirements for special form radioactive material, as specified in the IAEA Regulations and for which a certificate of approval from a competent authority has been issued.

special safety system *(système spécial de sûreté)*
With respect to CANDU nuclear power plants, one of the following systems: shutdown system no. 1, shutdown system no. 2, the containment system or the emergency core cooling system.

special waste rock *(stériles spéciaux)*
See mineralized waste rock.

specific activity *(activité spécifique)*
The activity per unit mass. (Source: *Nuclear Substances and Radiation Devices Regulations*)
OR
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

spent fuel *(combustible épuisé)*
See used nuclear fuel.

spent fuel bay *(piscine de stockage du combustible usé)*
See wet storage bay.

spent nuclear fuel (SNF) *(combustible nucléaire épuisé)*
See used nuclear fuel.

SPI *(indicateur de rendement en matière de sûreté)*
See safety performance indicator.

SRS *(SRS)*
See safety-related systems.

SS *(chef de quart)*
shift supervisor; see plant shift supervisor

SSC *(SSC)*
See structures, systems and components.

SSCs important to safety *(SSC importants pour la sûreté)*
See systems important to safety.

SSD *(distance source-peau [DSP])*
source skin distance

SSS *(état d'arrêt sûr)*
See safe shutdown state.

SStrA *(ERMCE)*
site selection threat and risk assessment

stakeholder *(partie intéressée)*
Any person or group that has an interest in, is affected by, or has an effect on an environment in which a licensed activity occurs, or has a role in decisions made pertaining to that environment. Some examples are First Nations; licensees and their sector associations; other federal, provincial, territorial, or municipal governments or agencies; and the public and commercial sectors dependent on the environment under consideration. The public may include non-government organizations, community groups, and concerned individuals. Commercial sectors may include commercial fishing, forestry or trapping.
OR
In an emergency, individuals and organizations with whom the CNSC has direct or indirect relationships, including all CNSC officers and employees, CNSC-authorized representatives and agents, licensees, special interest groups, non-governmental organizations, other government departments and agencies (including international organizations), the media and the public.

standard source *(source-étalon)*
A radioactive source characterized for the activity of radionuclides by the National Research Council of Canada, or another national standardizing laboratory for radioactivity measurements, and issued with a certificate that gives the results of the characterization.

standby safety-related system *(système de sûreté en attente)*
As specified by a licensee, those poised systems that provide for the ultimate reactor cooling following design-basis events (such as emergency power supply and emergency water supply).

starting point of safeguards *(point de départ des garanties)*
One of two conditions that invoke IAEA safeguards under the Canada/IAEA Safeguards Agreement:

- when any nuclear material of a composition and purity suitable for fuel fabrication or for isotopic enrichment leaves the plant or the process stage in which it has been produced
- when such nuclear material, or any other nuclear material produced at a later stage in the nuclear fuel cycle, is imported into Canada

Note: The IAEA safeguards in the agreement do not apply to material in mining or ore processing activities.

station blackout (SBO) *(panne d'électricité totale de la centrale[PET])*
A complete loss of alternating current (AC) power from offsite and onsite main generator, standby and emergency power sources. Note that a station blackout does not include failure of uninterruptible AC power supplies and direct current power supplies. It also does not include failure of alternate AC power. Also called extended loss of AC power event.

steam generator *(générateur de vapeur)*
A heat exchanger that transfers heat from primary coolant in order to boil water. Also called boiler. **Note:** The water boils, producing steam to drive a turbine. The steam generator tubes separate the reactor coolant from the rest of the power-generating system.

stepback *(recul rapide de puissance [RRP])*
With respect to CANDU nuclear power plants, a system designed to automatically reduce reactor power at a fast rate if a problem occurs. The stepback system is part of the reactor-regulating system.

stochastic effect *(effet stochastique)*
A radiation-induced health effect, the probability of occurrence of which is greater for a higher radiation dose and the severity of which (if it occurs) is independent of dose. **Note:** Stochastic effects may be somatic effects or hereditary effects, and generally occur without a threshold level of dose. Examples include cancer and leukemia.

storage *(stockage)*
With respect to nuclear substances and radiation devices, possession for storage only.

storage array *(réseau de stockage)*
With respect to nuclear criticality safety, a regular arrangement of storage cells.

storage bay *(piscine de stockage)*
See wet storage bay.

storage cell *(cellule de stockage)*
With respect to nuclear criticality safety, a volume having defined boundaries within which a storage unit is positioned.

storage pool *(piscine de stockage)*
See wet storage bay.

storage unit *(unité de stockage)*
With respect to nuclear criticality safety, a mass of fissile material considered as an entity. The material may be of any shape, and a unit may consist of separate pieces.

storage with surveillance *(stockage sous surveillance)*
A planned stage during a decommissioning program in which the remaining contaminated materials, equipment and site(s) are placed under controlled surveillance for a specified period of time.
Note: Licensing control by the CNSC remains in effect during such periods.

storm surge *(vague de tempête)*
An abnormal rise in water level accompanying a hurricane or other intense storm.

stratum *(strate)*
With respect to nuclear material accounting, a grouping of items and/or batches having similar physical and chemical characteristics. For example, items may be grouped according to isotopic composition in order to facilitate statistical sampling.

stressor *(facteur de stress)*
An agent or stimulus stemming from pre-service and service conditions that can produce immediate or gradual aging degradation of a structure, system or component. Some examples are heat, steam, chemicals, radiation, and electrical cycling.

structures, systems and components (SSCs) *(structures, systèmes et composants [SSC])*
A general term encompassing all of the elements of a facility or activity that contribute to protection and safety. Structures are the passive elements: buildings, vessels, shielding, etc. A system comprises several components, assembled in such a way as to perform a specific (active) function. A component is a discrete element of a system. Some examples are wires, transistors, integrated circuits, motors, relays, solenoids, pipes, fittings, pumps, tanks and valves.

structures, systems and components important to safety *(SSC importants pour la sûreté)*
See systems important to safety.

S-tube *(tube en S)*
See exposure device source path.

subcritical limit *(limite de sous-criticité)*
The limiting value assigned to a controlled parameter that results in a subcritical system under specified conditions. The subcritical limit allows for uncertainties in the calculations and experimental data used in its derivation but not for contingencies such as double batching or inaccuracies in analytical determinations.

subsurface zone location *(localisation des zones souterraines)*
The release of sand, gel, cement or other material labelled with nuclear substances into a well during fracturing or cementing operations to determine the depth and extent of a fractured or cemented zone. This term is used as a licence use type.

success criterion *(critère de réussite)*
A criterion for a structure, system or component that designates the minimum functional capability and performance levels required for effectiveness.

supplementary equipment *(équipement supplémentaire)*
Equipment and instruments that are not installed as part of the original plant design, but are used as an additional provision to mitigate the consequences of an accident. An example is the emergency mitigating equipment (EME). **Note:** The use of EME is covered in the EME guidelines (EMEG).

surveillance *(surveillance)*
Activities carried out to confirm compliance with the safe operating envelope (or with the operational limits and conditions, if applicable), to verify correct operational states and to detect any abnormal condition before it can impair the ability of the structure, system or component to meet its design intent.

sustainability *(durabilité)*
The capacity of a thing, action, activity, or process to be maintained indefinitely. (Source: *Federal Sustainable Development Act*)

sustainable development *(développement durable)*
Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. (Sources: *Canadian Environmental Assessment Act, 2012*; *Canadian Environmental Protection Act, 1999*; *Federal Sustainable Development Act*)

Sv *(Sv)*
See sievert.

systematic approach to training (SAT) *(approche systématique à la formation [ASF])*
A structured approach to training, composed of the following phases:

- **analysis:** identification of training needs and of the knowledge, skills and attributes required to perform a particular job
- **design:** conversion of the knowledge, skill and attribute requirements identified in the analysis into training objectives and the production of a training plan
- **development:** preparation of the training materials to meet the training objectives
- **implementation:** training, using the training materials developed
- **evaluation:** determination of the effectiveness of training in producing competent workers; evaluation feedback is used as input to the other phases of SAT to ensure continued training effectiveness

systematic fuel failure *(défaillance systématique du combustible)*
Fuel that had no known defect prior to an event, but that fails or exceeds the fuel integrity criteria defined in the version-controlled document or in the licensee documents requiring notification of change as a result of the event.

systematic review *(examen systématique)*
A review in which specified and appropriate methods are used to identify, appraise and summarize studies addressing a defined question.

systems important to safety (SIS) *(systèmes importants pour la sûreté [SIS])*
Systems of a reactor facility associated with the initiation, prevention, detection or mitigation of any failure sequence and that have an impact in reducing the possibility of damage to fuel, associated release of radionuclides or both.

OR

With respect to reliability programs for a reactor facility, those structures, systems and components of the facility that are associated with the initiation, prevention, detection or mitigation of any failure sequence and that have the most significant impact in reducing the possibility of damage to fuel, associated release of radionuclides or both.

T

tailings *(résidus)*
The waste material and water mixture left over after a mill removes the valuable rocks. The rock material in tailings is usually the size of sand grains or smaller. **Note:** Tailings that result from uranium milling contain long-lived radionuclides (such as thorium-230 and radium-226) produced from the decay of uranium, as well as trace metals like arsenic and nickel. They also contain chemical residues from the milling process.

tank *(citerne)*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: In the IAEA Regulations, tank means a portable tank (including a tank container), a road tank vehicle, a rail tank vehicle or a receptacle that contains solids, liquids or gases, having a capacity of not less than 450 litres when used for the transport of gases.

tare weight *(masse à vide)*
The weight of a container and/or packing material without the weight of the material it contains.

task *(tâche)*
With respect to a systematic approach to training, a discrete segment of work that:
- has two or more steps
- has a definite beginning and end
- constitutes a logical and necessary part of the duty and/or job of the individual who performs this work

task list *(liste des tâches)*
With respect to a systematic approach to training, the list of tasks that make up the requirements in a job or duty area. The list should also include critical supporting references that provide insight into the scope and difficulty of the tasks.

TBI *(ICT)*
total body irradiation

TBq *(TBq)*
terabecquerel, that is, 10^{12} becquerels; see becquerel.

teaching points *(points à enseigner)*
With respect to a systematic approach to training, the elements that make up an evaluation objective: discrete steps, skills, factors or concepts requiring separate demonstration or explanation that the trainee must master, learn or do.

Technical Instructions for the Safe Transport of Dangerous Goods by Air *(Instructions techniques pour la sécurité du transport aérien des marchandises dangereuses)*
The document of that name, designated as Doc 9284, published by the International Civil Aviation Organization, as amended from time to time. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

technical staff *(personnel technique)*
With respect to nuclear criticality safety, personnel with specific skills and experience who can help implement CNSC regulatory requirements. Such personnel may include, but are not limited to, criticality safety, health and safety, and facility process support personnel.

teletherapy machine *(appareil de téléthérapie)*
A device that is designed to deliver controlled doses of radiation in a collimated beam for therapeutic purposes. (Sources: *General Nuclear Safety and Control Regulations*; *Class II Nuclear Facilities and Prescribed Equipment Regulations*)

temporary repair *(réparation temporaire)*
A repair that temporarily enables a failed or degraded structure, system or component to function according to its original design until a permanent repair or replacement can be completed.

temporary storage *(stockage temporaire)*
Storage during the transportation cycle when a sealed source is unattended.

tenth-value layer (TVL) *(couche d'atténuation au dixième [CAD])*
The thickness of a shield or an absorber that reduces the radiation level to 10 percent of its initial level.

terabecquerel (TBq) *(térabecquerel [TBq])*
10^{12} becquerels; see becquerel.

terminal learning objective (TLO) *(objectif d'apprentissage final)*
A statement that describes the expected performance upon completion of specified training. The statement includes a description, in operational terms, of what the individual must do, the condition under which the performance must be completed, and the standard to which the performance must conform.

testing *(essai)*
For nuclear power plants, the observation or measurement of condition or functional indicators under controlled conditions to verify that the current performance of a structure, system or component conforms to acceptance criteria.

therapeutic nuclear medicine *(médecine nucléaire thérapeutique)*
The administration of unsealed sources (nuclear substances) to humans for therapeutic purposes related to their healthcare. Therapeutic nuclear medicine also includes the processing of radiopharmaceuticals and laboratory studies that are part of the therapy.

thermography *(thermographie)*
A diagnostic technique that uses a thermograph to record the heat produced by different components.

thermoluminescent dosimeter (TLD) *(dosimètre thermoluminescent [DTL])*
A type of dosimeter used to monitor exposure to radiation. A TLD measures ionizing radiation exposure by measuring the intensity of visible light emitted from a crystal in the detector when the crystal is heated. The intensity of light emitted is dependent on the radiation exposure.

threat and risk assessment (TRA) *(évaluation de la menace et du risque [EMR])*
An evaluation of the adequacy of an existing or a proposed physical protection system designed to safeguard against
(a) intentional acts that could pose a threat to the security of a high-security site; and
(b) the exploitation of weaknesses in the physical protection measures of a high-security site.
(Source: *Nuclear Security Regulations*)

three-way communication *(communication avec confirmation du message)*
A method of verbal communication designed to reduce potential communication error. The initiator sends a message, the receiver of the message repeats the message back to the initiator, and the initiator then provides confirmation to the receiver that the repeated message is correct.

thyroid burden *(activité thyroïdienne)*
The quantity of a radionuclide that has been deposited in the thyroid.

thyroid screening *(dépistage thyroïdien)*
The monitoring of workers for the purpose of detecting the presence of radioiodine deposited in the thyroid as an indication of radioiodine intake. **Note:** Thyroid screening is not intended for quantitative dose assessment.

TI *(IT)*
See transport index.

TIE *(IET)*
See toxicity identification and evaluation.

time-based maintenance *(entretien en fonction de la durée)*
See periodic maintenance.

time-based overhaul *(remise en état basée sur la durée)*
An overhaul that is performed based on a set time period.

time-based preventive maintenance *(entretien préventif basé sur la durée)*
Maintenance performed on equipment in accordance with a set time period (predefined) or given amount of operation.

time-limited assumptions (TLA) *(hypothèses limitées dans le temps)*
Assumptions used in certain safety or design analyses specific to a facility or to a structure, system or component (SSC) and that are based on an explicitly specified facility or SSC life. Some TLA examples are metal fatigue calculation; pressurized thermal shock analysis; radiation-induced deformation and embrittlement; thermal aging; loss of material; and equipment qualification of electrical equipment, instrumentation and control equipment, and cables.

tissue weighting factor (w_T) *(facteur de pondération tissulaire [w_T])*
The multiplier of the equivalent dose to an organ or tissue for the purpose of determining the effective dose. The tissue weighting factors account for the different sensitivities of different organs and tissues to the induction of stochastic effects of radiation.

TLA *(hypothèses limitées dans le temps)*
See time-limited assumptions.

TLD *(DTL)*
See thermoluminescent dosimeter.

TLO *(objectif d'apprentissage final)*
See terminal learning objective.

TNA *(ABF)*
training needs analysis

total communications blackout *(coupure complète des communications)*
A situation where forms of electronic communications, such as traditional, cell and satellite phones, and Web-based communications, are unavailable.

toxic *(toxique)*
See CEPA toxic.

toxicity identification and evaluation (TIE) *(identification et évaluation de la toxicité (IET))*
A process that identifies the toxic components of an effluent or ambient medium by chemically manipulating the effluent or medium and testing the resulting material.

TP *(paramètre de déclenchement)*
See trip parameter.

TRA *(EMR)*
See threat and risk assessment.

tracer studies *(étude à partir de traceurs)*
The field use of nuclear substances for industrial, environmental or research purposes other than subsurface tracer studies.

trained and qualified *(formé et qualifié)*
Having a specified level of knowledge, skills, attitudes and experience to meet job performance requirements.

trainee characteristics *(profil des stagiaires)*
The target population for whom the proposed training is intended as well as relevant information about the trainees concerned, such as the aptitudes, special skills, education, previous related training and personal data (such as age). Defining trainee characteristics is a component of a training system.

trainee evaluation *(évaluation des stagiaires)*
The assessment of progress made by participants during an instructional program (formative evaluation) and of their achievement at the end of the program (summative evaluation).

training *(formation)*
A combination of activities with the purpose of providing the knowledge, skills and attitudes to individuals or teams in order to allow performance of activities in an effective and efficient manner and to identified criteria. Also called instruction.

training development plan *(plan d'élaboration de la formation)*
A document that describes how the output of the analysis and design phases is intended to be used during the development to meet the requirements of the terminal learning objectives and enabling objectives.

training plan *(plan de formation)*
See training development plan.

training program *(programme de formation)*
A structured collection of courses required for achieving a qualification or certification to perform work. Also called instructional program.

training system *(système de formation)*
A series of training-related processes and procedures that provides the basis for the analysis, design, development, implementation, evaluation, documentation and management of training programs and courses.

transfer *(transférer)*
Move nuclear material, both domestic (between Canadian material balance areas) and foreign (imports and exports). **Note:** This definition applies specifically to nuclear material accounting.
OR
Change possession of a nuclear substance or radiation device from one licensee to another where both are located within Canada.
OR
Move a nuclear substance or radiation device from one location to another, where both places are located within Canada.
OR
See export *or* import.

transit *(transit)*
The process of being transported through Canada after being imported into and before being exported from Canada, in a situation where the place of initial loading and the final destination are outside Canada. (Sources: *General Nuclear Safety and Control Regulations*; *Nuclear Non-proliferation Import and Export Control Regulations*; *Packaging and Transport of Nuclear Substances Regulations, 2015*)

transport *(transport)*
The handling, carrying or storage in transit and receipt at the final destination of packages. Transport includes normal and accident conditions encountered in carriage and in storage during transit.

transport index (TI) *(indice de transport [IT])*
Has the same meaning as in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)
Note: The TI is a number assigned to a package, overpack, freight container, or to unpackaged LSA-I or SCO-I, used to provide control over radiation exposure.

transuranic element *(élément transuranien)*
Any chemical element that has an atomic number greater than 92 (the atomic number of uranium).

trending *(établissement des tendances)*
With respect to nuclear criticality safety, the extrapolation of data from periodic non-destructive measurements of a control Raschig ring's physical and chemical properties, and from certain properties of the vessel, to predict changes with time in the properties measured.

trip *(déclenchement)*
See reactor trip.

trip parameter (TP) *(paramètre de déclenchement)*
A measurement of a variable that is used to trigger a safety system action when the trip parameter set point is reached.

trip parameter set point *(valeur seuil de déclenchement)*
The trip parameter value at which activation of a safety system is triggered.

tritium (T or ^{3}H) *(tritium)*
A radioisotope (symbol T or ^{3}H) of the element hydrogen, composed of one proton and two neutrons.

trusted third party *(tierce partie de confiance)*
A private organization or agency that is in partnership with the Canadian Police Information Centre (or equivalent) for the purposes of conducting name-based criminal record verifications.
OR
A private organization or agency contracted by a licensee for the purposes of conducting reference verifications.

TVL *(CAD)*
See tenth-value layer.

Type I inspection *(inspection de type I)*
A systematic, planned and documented process to determine, through objective evidence, whether a licensee program, process or practice complies with the regulatory requirements as expressed in the compliance criteria associated with the inspection. Also called audit; evaluation.

Type II inspection *(inspection de type II)*
A planned and documented activity to verify the results of licensee processes and not the processes themselves. Type II inspections are typically routine (item-by-item checklist) inspections and rounds of specified equipment and/or facility material systems, or of discrete records, products or outputs from licensee processes.

Type A *(type A)*
In respect of a package, means that the package is designed in accordance with the applicable requirements of the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type B *(type B)*
In respect of a package, means that the package is classified as either a Type B(U) or a Type B(M) package in accordance with the IAEA Regulations and is designed in accordance with the applicable requirements of those Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type C *(type C)*
In respect of a package, means that the package is designed in accordance with the applicable requirements of the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type H(M) *(type H[M])*
In respect of a package, means that the package has a type code of H(M) in accordance with the IAEA Regulations and is an excepted package, Type IP-1 package, Type IP-2 package, Type IP-3 package or Type A package that is designed to contain more than 0.1 kg of uranium hexafluoride that is non-fissile material or is fissile-excepted radioactive material. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type H(U) *(type H[U])*
In respect of a package, means that the package has a type code of H(U) in accordance with the IAEA Regulations and is an excepted package, Type IP-1 package, Type IP-2 package, Type IP-3 package or Type A package that is designed to contain more than 0.1 kg of uranium hexafluoride that is non-fissile material or is fissile-excepted radioactive material. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type IP-1 *(type IP-1)*
In respect of a package, means that the package is designed in accordance with the applicable requirements of the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type IP-2 *(type IP-2)*
In respect of a package, means that the package is designed in accordance with the applicable requirements of the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

Type IP-3 *(type IP-3)*
In respect of a package, means that the package is designed in accordance with the applicable requirements of the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations, 2015*)

U

U *(U)*
See uranium ***or*** use factor.

ultimate heat sink *(source froide d'ultime secours)*
A medium into which the transferred residual heat from nuclear fuel can always be accepted, even if all other means of removing the heat have been lost or are insufficient. This medium is normally a body of water or the atmosphere.

uncertainty analysis *(analyse d'incertitude)*
The process of identifying and characterizing the sources of uncertainty in an analysis, evaluating their impact on the analysis results, and developing, to the extent practicable, a quantitative measure of this impact.

uncertainty in the bias *(incertitude liée au biais)*
A measure of both the accuracy and the precision of the calculations and uncertainty of data.

unconditional clearance level *(niveau de libération inconditionnelle)*
In respect of a bulk quantity of material, except for surface contaminated material, in which the radioactive nuclear substance is uniformly distributed, means an activity concentration that

(a) in respect of a radioactive nuclear substance set out in column 1 of Schedule 2, is the corresponding activity concentration set out in column 2;
(b) in respect of a radioactive nuclear substance that is not set out in column 1,
  (i) is 1 Bq/g, if the atomic number of the substance is equal to or less than 81,
  (ii) is 1 Bq/g, if the atomic number of the substance is greater than 81 and the substance, or its short-lived radioactive progeny, does not emit alpha radiation, and
  (iii) is 0.1 Bq/g, if the atomic number of the substance is greater than 81 and the substance, or its short-lived radioactive progeny, emits alpha radiation; or
(c) in respect of more than one radioactive nuclear substance – except for thorium-232, uranium-235, uranium-238 and their radioactive progeny mentioned in paragraph 4.3 of the IAEA Safety Standard RS-G-1.7 – is the quotient obtained by dividing the total activity concentration by the sum of quotients obtained by dividing the activity concentration of each radioactive nuclear substance by its corresponding activity concentration as referred to in paragraph (a) or (b).

(Source: *Nuclear Substances and Radiation Devices Regulations*)

Note: Bq/g means becquerels/gram.

unified uranium *(uranium unifié)*
A category of uranium, used for nuclear material accounting and reporting purposes under the Safeguards Agreement, through which all uranium (natural, depleted and enriched) is included in a single (unified) account.

unirradiated thorium *(thorium non irradié)*
As defined in the IAEA Regulations. (Source: *Packaging and Transport of Nuclear Substances Regulations 2015*)
Note: In the IAEA Regulations, unirradiated thorium means containing not more than 10^{-7} grams of uranium-233 per gram of thorium-232.

unit 0 operator *(opérateur de la tranche 0)*
The person in a multi-unit nuclear power plant (NPP) who is responsible for operating and monitoring a group of safety and process systems common to all reactor units from the main control room unit 0 panels, in accordance with the NPP licence, policies and procedures.

unsealed source *(source non scellée)*
A source other than a sealed source. (Source: *Nuclear Substances and Radiation Devices Regulations*)
Note: These nuclear substances are in a physical form where dispersion of the radioactive material is possible during use or handling. Usually a liquid, they may also be in solid, powder or gaseous form. Unsealed sources are commonly used in medical diagnostic and therapeutic treatments, as well as in laboratory research applications. Also called open source.

update training *(formation de mise à jour)*
See continuing training.

upper subcritical limit (USL) *(limite supérieure de sous-criticité [LSSC])*
The maximum allowed value of the calculated effective multiplication factor (k_{eff}) or of a single-parameter subcritical limit, under both normal and credible abnormal conditions, including allowance for the bias, uncertainty in the bias, and an administrative margin of subcriticality.

uprate *(augmentation de puissance)*
The action of increasing a nuclear power plant's output capacity.

uranium (U) *(uranium)*
See depleted uranium, enriched uranium *or* natural uranium.

uranium concentrate *(concentré d'uranium)*
A product with a high abundance in uranium obtained by physical and chemical treatments, requiring further refinement before it is suitable for nuclear use. Uranium concentrate from a mill is upgraded by refining and converting it to uranium trioxide (UO_3), and subsequently into uranium dioxide (UO_2) (used in Canada) and uranium hexafluoride (UF_6) (exported). Also called yellowcake.

uranium ore concentrate *(concentré de minerai d'uranium)*
See uranium concentrate.

usability *(capacité d'utilisation)*
The extent to which a product can be used by specified users, to achieve specified goals, with effectiveness, efficiency and satisfaction in a specified context of use.

use *(utiliser)*
Manipulate or handle nuclear substances and radiation devices; operate radiation devices. **Note:** This definition applies to nuclear substances and radiation devices.

used fuel pool *(piscine de combustible usé)*
See wet storage bay.

used nuclear fuel *(combustible usé)*
Used fuel assemblies removed from a reactor after several years use and treated as waste. Also called irradiated nuclear fuel; spent fuel. **Note:** In Canada, "irradiated nuclear fuel" or "used nuclear fuel" is a more accurate term for "spent fuel" (a term used internationally and in some Canadian reports with the same meaning in this definition, to align with international agreements and conventions), because discharged fuel is considered a waste material even when it is not fully spent.

use factor (U) *(facteur d'utilisation [U])*
The fraction of the total workload during which a radiation field is present at a particular location. This factor (≤ 1) is multiplied by the workload and occupancy factor at that location, to derive the maximum personal dose any single person would be expected to receive.

use type *(type d'utilisation)*
The purpose for which a licence has been issued.

USL *(LSSC)*
See upper subcritical limit.

U.S. NRC *(U.S. NRC)*
See U.S. Nuclear Regulatory Commission.

U.S. Nuclear Regulatory Commission (U.S. NRC) *(Nuclear Regulatory Commission des États-Unis [NRC des États-Unis])*
The agency of the U.S. federal government responsible for regulating commercial nuclear power plants and other uses of nuclear materials through licensing, inspection and enforcement of its requirements.

V

validated computational technique *(technique de calcul validée)*
With respect to nuclear criticality safety, a calculation technique that has been validated in conformance with the CNSC's guidance for nuclear criticality safety.

validation *(validation)*
The process of checking or proving the accuracy of a model, method or procedure against expected requirements.

OR

For emergency preparedness, an evaluation using performance-based tests to determine whether the integrated design of a system (equipment, procedure and personnel elements) meets performance requirements and acceptably supports safe operations.

valued component (VC) *(composante valorisée [CV])*
Environmental features that may be affected by a project and that have been identified to be of concern by the proponent, government agencies, Aboriginal peoples or the public. (Source: *Practitioners Glossary for the Environmental Assessment of Designated Projects Under the* Canadian Environmental Assessment Act, 2012 [1])
Note 1: The value of a component not only relates to its role in the ecosystem, but also to the value people place on it. For example, it may have been identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance. For the purposes of [the *Canadian Environmental Assessment Act* (CEAA 2012)], valued components are selected in relation to section 5 of CEAA 2012 and taking into account direction provided by the responsible authority, or in the case of an EA by review panel, by the [Canadian Environmental Assessment Agency] or the Minister [of Environment and Climate Change]. (Source: *Practitioners Glossary for the Environmental Assessment of Designated Projects Under the* Canadian Environmental Assessment Act, 2012 [1])
Note 2: VCs are selected from the abiotic and biotic information collected as part of the baseline characterization. They may be surrogate organisms rather than actual plant or animal species (for example, a theoretical benthic feeding fish species), communities (for example, a benthic macroinvertebrate community) or specific species (for example, an endangered species), but may also include significant ecological features of the environment, such as wetlands.

valued ecosystem component (VEC) *(composante valorisée de l'écosystème [CVE])*
See valued component.

VC *(CV)*
See valued component.

VEC *(CVE)*
See valued component.

vehicle *(véhicule)*
Means any means of air, water or land transport, and includes railway equipment within the meaning assigned to that expression by subsection 4(1) of the *Railway Safety Act*. (Source: *Nuclear Safety and Control Act*)

vehicle portal *(sas pour véhicule)*
A structure situated on the perimeter of a protected area that is enclosed on the sides and consists of two movable gates, separated by a space sufficiently large to accommodate land vehicles having an operational requirement to enter the area. (Source: *Nuclear Security Regulations*)

vendor/contractor *(fournisseur/entrepreneur)*
With respect to training, a person who is either contracted by a licensee to develop or deliver training, or who delivers training to a licensee's staff with the intent that a required qualification will be granted upon completion of the training.

verification *(vérification)*
The act of reviewing, checking or inspecting to confirm that specified requirements have been met.

version-controlled document *(document contrôlé)*
With respect to reporting requirements for nuclear power plants, a document that is subject to version control due to its inclusion in the licence conditions handbook. **Note:** Such documents include regulatory documents or Canadian and international standards as referenced in the licence (and may include documents or Canadian and international standards that require transition). Version-controlled documents may also include key licensee documents, such as documents requiring consent of change (as per a licence condition). Each version-controlled document includes a unique identifier that can be clearly referenced.

vessel *(colonne [ou réservoir])*
Any seagoing vessel or inland waterway craft used for carrying cargo.
OR
With respect to nuclear criticality safety, a container designed to hold a solution, including any volume within which criticality control is provided by Raschig rings.

violation *(violation)*
Failure to comply with:

- a provision of the *Nuclear Safety and Control Act* (NSCA) or the regulations made under the NSCA
- an order or decision made under the NSCA
- a licence term or condition

vital area *(zone vitale)*
An area inside a protected area containing equipment, systems, devices or a nuclear substance, the sabotage of which would or would likely pose an unreasonable risk to the health and safety of persons arising from exposure to radiation. (Source: *Nuclear Security Regulations*)

VSLORC *(perte très lente de contrôle de la réactivité)*
very slow loss of reactivity control

W

WANO *(WANO)*
See World Association of Nuclear Operators.

waste management SCA *(DSR Gestion des déchets)*
A safety and control area (SCA) that covers internal waste-related programs that form part of the facility's operations up to the point where the waste is removed from the facility to a separate waste management facility. This area also covers the planning for decommissioning. This SCA is one of the 14 within the CNSC SCA Framework.

waste management system *(système de gestion des déchets)*
A system for collecting, transporting, receiving, treating, processing, storing or disposing of the wastes that are produced as a result of the licensed activity at a uranium mine or mill. (Source: *Uranium Mines and Mills Regulations*)
Note: More generally, all licensed nuclear facilities (not only uranium mines and mills) have waste management systems.

waste nuclear substance activities *(activités liées aux déchets de substances nucléaires)*
Activities in relation to waste nuclear substances that are not located at a Class I or a Class II nuclear facility or at a mine or mill. (Source: *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*)

waste rock *(stériles)*
Rock that does not contain any minerals in sufficient concentration to be considered ore, but which must be removed in the mining process to provide access to the ore. Waste rock includes both mineralized and clean waste rock.

water frequented by fish *(eaux où vivent des poissons)*
Canadian fisheries waters. (Source: *Fisheries Act*)

weapon *(arme)*
Anything that could be used or is capable of being used to jeopardize the security of a nuclear facility or a nuclear substance or anything, including firearms, that is used, designed to be used or intended for use in causing death or injury to any person or for the purpose of threatening or intimidating any person. (Source: *Nuclear Security Regulations*)

weight data *(données de masse)*
The numeric label and the element or isotope weight of an item or batch of nuclear material. This definition applies to nuclear material accounting.

wet storage bay *(piscine de stockage)*
A large pool of water where radioactive material (mainly fuel discharged from a nuclear reactor) is cooled and shielded until it is safe to remove to dry storage. Also called fuel bay; irradiated fuel bay; spent fuel bay; storage bay; storage pool; used fuel pool.

WHMIS *(SIMDUT)*
Workplace Hazardous Materials Information System

wipe test *(épreuve de contamination par frottis)*
An indirect form of contamination monitoring that involves wiping a suspect surface and measuring the nuclear substances collected on the wipe sample.

WL *(WL)*
See working level.

WLM *(WLM)*
See working level month.

worker *(travailleur)*
A person who performs work that is referred to in a licence. (Sources: *General Nuclear Safety and Control Regulations*; *Class I Nuclear Facilities Regulations*; *Class II Nuclear Facilities and Prescribed Equipment Regulations*; *Nuclear Substances and Radiation Devices Regulations*; *Radiation Protection Regulations*; *Uranium Mines and Mills Regulations*)
Note: This definition applies to contractors and to subcontractors, as well as to workers directly employed by a licensee.

workers' representative *(représentant des travailleurs)*
Means:
(a) a person who is a member of the workers' safety and health committee;
(b) the workers' safety and health representative;
(c) where there is no person referred to in paragraph (a) or (b), the workers' collective bargaining agent; or
(d) where there is no person referred to in paragraph (a), (b) or (c), a worker.
(Source: *Uranium Mines and Mills Regulations*)

working level (WL) *(unité alpha [WL])*
The concentration of radon progeny in 1 m^3 of air that has a potential alpha energy of 2.08×10^{-5} J.
(Source: *Radiation Protection Regulations*)

working level month (WLM) *(unité alpha-mois [WLM])*
The exposure that results from the inhalation of air containing one working level for 170 hours.
(Source: *Radiation Protection Regulations*)
Note: This unit of measure is used to express the level of exposure to radon decay products.

workload *(charge de travail)*
With respect to Class II prescribed equipment or radiation devices, a parameter that characterizes the amount of use over a defined period and that is directly related to the resulting radiation doses received by persons occupying adjacent areas over that period. Workload is typically calculated in grays per year at some reference distance from the source of radiation, for a specified source location.

work package (WP) *(ensemble de travaux)*
A logical grouping of relatively contiguous tasks aimed at achieving a particular step in the overall project. For example, in a decommissioning project, the removal of a specific facility component (including, as necessary, its decontamination, disassembly and delivery to a waste segregation area) could constitute a single work package.

workplace *(lieu de travail)*
Any area within a uranium mine or mill where a worker could reasonably be expected to be in the course of performing work. (Source: *Uranium Mines and Mills Regulations*)
Note: More generally, this term also applies to all licensed nuclear facilities.

workplace air sampler (WPAS) *(échantillonneur d'air sur le lieu de travail [WPAS])*
An air sampler, consisting of a filter holder and vacuum pump, mounted in a working area to estimate breathing zone concentrations of radionuclides.

World Association of Nuclear Operators (WANO) *(Association mondiale des exploitants de centrales nucléaires [WANO])*
A non-profit organization with the mission of maximizing the safety and reliability of nuclear power plants worldwide by working together with its members to assess, benchmark and improve performance through mutual support, exchange of information and emulation of best practice.

WP *(ensemble de travaux)*
See work package.

WPAS *(WPAS)*
See workplace air sampler.

w_R *(w_R)*
See radiation weighting factor.

w_T *(w_T)*
See tissue weighting factor.

X-Y-Z

X-ray radiation *(rayons X)*
Electromagnetic radiation that consists of photons originating from outside an atom's nucleus.

yellowcake *(yellowcake)*
See uranium concentrate.

Zangger Committee *(Comité Zangger)*
A multilateral export control regime, formed as the *Treaty on the Non-Proliferation of Nuclear Weapons'* (NPT) Exporters Committee, that serves as the "faithful interpreter" of article III(2) of the NPT in order to inform the interpretation of nuclear export control policies for treaty members. The Zangger Committee maintains a "Trigger List" (International Atomic Energy Agency Information Circular 209 (INFCIRC/209 [11]), triggering safeguards as a condition of supply) of nuclear items to assist NPT parties in identifying equipment and materials subject to export controls.

Appendix A: Acronyms and Abbreviations

ACR *(RAC)*	annual compliance report
AECL *(EACL)*	Atomic Energy of Canada Limited
ALARA *(ALARA)*	as low as reasonably achievable
ALI *(LAI)*	annual limit on intake
AM *(GV)*	aging management
AMP *(SAP* ou *PGV)*	administrative monetary penalty **Note:** AMP has also been used for aging management program / aging management plan but is now reserved for administrative monetary penalty
ANO *(ONA)*	authorized nuclear operator; see reactor operator
ANS *(ANS)*	American Nuclear Society
ANSI *(ANSI)*	American Nuclear Standards Institute
AOO *(IFP)*	anticipated operational occurrence
ASDV *(VDVA)*	atmospheric steam discharge valve
ASME *(ASME)*	a professional association, founded as the American Society of Mechanical Engineers
BATEA *(MTEAR)*	best available technology and techniques economically achievable
BDBA *(AHD)*	beyond-design-basis accident
BDBT *(MHD)*	beyond-design-basis threat
BDCP *(PCSE)*	by-difference correction principle
BEAU *(BEAU)*	best estimate and uncertainty (BEAU) method
Bq *(Bq)*	becquerel
BWR *(REB)*	boiling water reactor
CANDU *(CANDU)*	CANada Deuterium Uranium
CCF *(DCC)*	common-cause failure
CCME *(CCME)*	Canadian Council of Ministers of the Environment
CEAA 2012 (LCEE 2012)	*Canadian Environmental Assessment Act, 2012*
CEDO *(OAEA)*	certified exposure device operator
CEPA (LCPE)	*Canadian Environmental Protection Act, 1999*
CHF	critical heat flux
Ci *(Ci)*	curie; see becquerel
CM	configuration management ***or*** corrective maintenance
CMD *(CMD)*	Commission member document
CNS *(CSN)*	Convention on Nuclear Safety
CNSC *(CCSN)*	Canadian Nuclear Safety Commission
CRNC *(VNCJ)*	criminal records name check
CRO *(OSC)*	control room operator; see reactor operator
CSA *(CSA)*	Canadian Standards Association; now called CSA Group
CSC *(CSC)*	criticality safety control; see nuclear criticality safety control
CSDV *(SEVC)*	condenser steam discharge valve
CSI *(ISC)*	criticality safety index
CVC *(CVC)*	compliance verification criteria

D *(D)*	absorbed dose
DA *(AD)*	derived activity
DAC *(LDCA)*	derived air concentration
DBA *(AD)*	design-basis accident
DBE *(SR)*	design-basis earthquake
DBT	design-basis threat
DCF *(FCD)*	dose conversion factor
DEC *(CAD)*	design extension conditions
DIL *(NED)*	derived investigational level
DO	designated officer
E *(E)*	effective dose
EA *(EE)*	environmental assessment
ECCS *(SRUC)*	emergency core cooling system
EFPH *(HEPP)*	equivalent full power hour.
EHRS *(SEUC)*	emergency heat removal system
EIR *(RIE)*	event initial report
EIS *(EIE)*	environmental impact statement
Ekg *(kgE)*	effective kilogram
EME *(EAU)*	emergency mitigating equipment
EMS *(SGE)*	environmental management system
EO	enabling objective
EPREV *(EPREV)*	Emergency Preparedness Review (an IAEA service)
EPS *(AEU)*	emergency power supply
EQ *(QE)*	environmental qualification
ERA *(ERE)*	environmental risk assessment
ERO *(OIU)*	emergency response organization
ESC *(CSU)*	emergency support centre
ESWS *(SSUAE)*	emergency secondary water supply system
eV *(eV)*	electron volt
FAI *(MPF)*	Fukushima action item
FERP *(PFIU)*	Federal Emergency Response Plan
FLORC *(PRCR)*	fast loss of reactivity control
FNEP *(PFUN)*	Federal Nuclear Emergency Plan
FV *(FV)*	Fussell-Vesely; see importance measures
FY *(exerice)*	fiscal year
GAI *(DG)*	generic action item
GAR *(REG)*	global assessment report; see global assessment
GBq (GBq)	gigabecquerel, that is, 10^9 becquerels; see becquerel
GSS *(EAG)*	guaranteed shutdown state
GWD *(GWj)*	gigawatt-days
Gy *(Gy)*	gray
HAC	hypothetical accident conditions
HCLPF	high confidence of low probability of failure

HDR *(HDD)*	high dose rate (HDR) brachytherapy remote afterloader
HEU *(UHE)*	high-enriched uranium
HEUNL *(NULHE)*	highly enriched uranyl nitrate liquid
HF *(FH)*	human factors
HFE *(IFH)*	**human factors engineering; see** human factors in design
HOP *(RHO)*	**human and organizational performance**
H_T *(H_T)*	equivalent dose
HTO *(HTO)*	**hydrogenated tritium oxide; also called tritiated water**
HTS	primary heat transport system
HVL *(CDA)*	half-value layer
HVT *(CDA)*	**half-value thickness; see** half-value layer
H/X *(H/X)*	**hydrogen-to-fissile atomic ratio**
IAEA *(AIEA)*	International Atomic Energy Agency
I&C *(IC)*	**instrumentation and control**
ICAO *(OACI)*	**International Civil Aviation Organization**
ICRP *(CIPR)*	International Commission on Radiological Protection
ICRU *(CIUMR)*	**International Commission on Radiation Units and Measurements**
IEMP *(PISE)*	Independent Environmental Monitoring Program
IFB	**irradiated fuel bay; see** wet storage bay
IIP *(PIMO)*	integrated implementation plan
IL *(NE)*	investigational level
IMRT *(RCMI)*	**intensity modulated radiation therapy**
INES *(INES)*	International Nuclear and Radiological Event Scale
INFCIRC *(INFCIRC)*	**Information Circular (IAEA publication)**
INPO *(INPO)*	Institute of Nuclear Power Operations
IPPAS *(SCIPP)*	**International Physical Protection Advisory Service**
IRD *(DRI)*	immediate rapid deployment
IRRS *(SEIR)*	**Integrated Regulatory Review Service**
IRS *(IRS)*	International Reporting System for Operating Experience
ISAR *(ISAR)*	industrial safety accident rate
ISI	in-service inspection
ISO *(ISO)*	**International Organization for Standardization**
ISR *(EIS)*	**integrated safety review; see** periodic safety review
KI *(KI)*	**potassium iodide**
LBB *(FAR)*	leak before break
LBLOCA *(APRPGB)*	**large-break loss-of-coolant accident; see** loss-of-coolant accident
LCH *(MCP)*	**licence conditions handbook**
LCMP *(PGV)*	**lifecycle management plan; see** aging management program / aging management plan
LDRM *(MRFD)*	low dispersible radioactive material
LET *(TLE)*	**linear energy transfer**
LEU *(UFE)*	low-enriched uranium
LLOCA *(APMRP)*	**large loss-of-coolant accident; see** loss-of-coolant accident

LLRD *(PRLP)*	**long-lived radioactive dust**
LLW *(DFA)*	low-level waste
LOCA *(APRP)*	loss-of-coolant accident
LOE *(ELE)*	limit of operating envelope
LOF	location outside facilities
LPO	**last person out**
LPSWOS *(CESBP)*	**low-pressure service water open system**
LRF *(FGER)*	**large release frequency**
LTO	long-term operation
LWR *(REO)*	**light-water reactor**
MAPS	minimum allowable performance standards
MBA *(ZBM)*	material balance area
MB Code *(code MB)*	measurement basis code
MBq *(MBq)*	**megabecquerel, that is, 10^6 becquerels; see** becquerel
MCR *(SCP)*	main control room
MDC *(CDM)*	material description code
MeV *(MeV)*	**megaelectron volt**
MMC *(CMM)*	minimum measurable concentration
MSDS *(FS)*	**material safety data sheet**
MSIV *(VIPV)*	**main steam isolation valve**
MTL *(NME)*	minimum testing level
MTU *(MTU)*	**metric tonne of uranium**
MU *(UM)*	**monitor unit**
NCB *(OCN)*	National Non-Destructive Testing (NDT) Certification Body
NCS *(SCN)*	nuclear criticality safety
NCSE *(ESCN)*	**nuclear criticality safety evaluation**
NDR *(FDN)*	National Dose Registry
NDT *(END)*	**non-destructive testing; see also** National Non-Destructive Testing (NDT) Certification Body
NEM *(GUN)*	nuclear emergency management
NEO *(OUN)*	Nuclear Emergency Organization
NEW *(TSN)*	nuclear energy worker
NOA	NOA – NO ADVERSE INFO ***or*** Notice of Assessment (NOA) – INSUFFICIENT INFO
NPP	nuclear power plant
NPT *(TNP)*	***Treaty on the Non-Proliferation of Nuclear Weapons*** **(also referred to as the Non-Proliferation Treaty or the Nuclear Non-Proliferation Treaty)**
NRC	**National Research Council** ***or*** U.S. Nuclear Regulatory Commission
NSCA (LSRN)	*Nuclear Safety and Control Act*
NSG *(GFN)*	Nuclear Suppliers Group
NSO *(ASN)*	nuclear security officer
OBT *(TLCO)*	**organically bound tritium**
OJT	on-the-job training

OLC	operational limits and conditions
OP&P *(LCE)*	operating policies and principles
OPEX *(OPEX)*	operating experience
PAR	passive autocatalytic recombiner; also called passive autocatalytic hydrogen recombiner
PAS *(EAP)*	personal air sampler
PBD *(DEP)*	pressure boundary degradation
PDR *(DDP)*	pulsed dose rate
PET *(TEP)*	positron emission tomography
PHTS *(CCP)*	primary heat transport system
PI	performance indicator
PIE *(EIH)*	postulated initiating event
PIF *(FIP)*	potential intake fraction
PIV *(VSP)*	physical inventory verification
PPE *(EPI)*	personal protective equipment
PPS *(SPP* or *AEP)*	physical protection system *or* preferred power supply
PRA *(EPS)*	probabilistic risk analysis *or* probability risk assessment; see probabilistic safety assessment
PROL *(PERP)*	power reactor operating licence
PRV *(VDV)*	primary relief valve
PSA *(EPS)*	probabilistic safety assessment
PSR *(BPS)*	periodic safety review
PWR *(REP)*	pressurized water reactor
QM *(GQ)*	quality management
R *(R)*	response
RAW *(RAR)*	risk achievement worth; see importance measures
RCA	root-cause analysis
RCM *(MAF)*	reliability-centred maintenance
RCS *(SRR)*	reactor coolant system
RDR *(RRR)*	risk decrease ratio; see importance measures
RIR *(RAR)*	risk increase ratio; see importance measures
RPPE *(EPIR)*	radiation personal protective equipment
RRW *(RRR)*	risk reduction worth; see importance measures
RSDS *(FSR)*	radiation safety data sheets
RSO *(RRP)*	radiation safety officer
SAD	source axis distance
SAM *(GAG)*	severe accident management (SAM) program
SAMG *(LDGAG)*	severe accident management guidelines; see severe accident management (SAM) program
SAT *(ASF)*	systematic approach to training
SBO *(PET)*	station blackout
SCA *(DSR)*	safety and control area
SCDF *(FDGC)*	severe core damage frequency

SCO *(SCO)*	surface contaminated object
SCR *(SCA)*	secondary control room
SD *(arrêt)*	shutdown
SDCS *(CRA)*	shutdown cooling system
SGECS *(SRUGV)*	steam generator emergency cooling system
SHP	senior health physicist
SI *(SI)*	International System of Units (Système international d'unités)
SIS *(SIS)*	systems important to safety
SM *(GQ)*	shift manager; see plant shift supervisor
SMR	scheduled maintenance release *or* security monitoring room
SNF	spent nuclear fuel; see used nuclear fuel
SOE *(PES)*	safe operating envelope
SOR *(BA)*	shutoff rod
SPI	safety performance indicator
SRS *(SRS)*	safety-related systems
SS	shift supervisor; see plant shift supervisor
SSC *(SSC)*	structures, systems and components
SSD	source skin distance
SSS	safe shutdown state
SStrA *(ERMCE)*	site selection threat and risk assessment
Sv *(Sv)*	sievert
TBI *(ICT)*	total body irradiation
TBq *(TBq)*	terabecquerel, that is, 10^{12} becquerels; see becquerel
TI *(IT)*	transport index
TIE *(IET)*	toxicity identification and evaluation
TLA	time-limited assumptions
TLD *(DTL)*	thermoluminescent dosimeter
TLO	terminal learning objective
TNA *(ABF)*	training needs analysis
TP	trip parameter
TRA *(EMR)*	threat and risk assessment
TVL *(CAD)*	tenth-value layer
U *(U)*	uranium *or* use factor
USL *(LSSC)*	upper subcritical limit
U.S. NRC *(U.S. NRC)*	U.S. Nuclear Regulatory Commission
VC *(CV)*	valued component
VEC *(CVE)*	See valued component
VSLORC	very slow loss of reactivity control
WANO *(WANO)*	World Association of Nuclear Operators
WHMIS *(SIMDUT)*	Workplace Hazardous Materials Information System
WL *(WL)*	working level
WLM *(WLM)*	working level month
WP	work package

WPAS ***(WPAS)***	workplace air sampler
w_R ***(w_R)***	radiation weighting factor
w_T ***(w_T)***	tissue weighting factor

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